

ORAL ARGUMENT NOT YET SCHEDULED

**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

---

No. 06-1068

---

CITY OF PORTLAND, OREGON,  
Petitioner,  
and CITY OF NEW YORK, NEW YORK  
Intervenor,  
v.  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,  
Respondent.

---

**Respondent's Initial Brief**

---

On Petition for Review of Final Agency Action  
by the United States Environmental Protection Agency

---

MATTHEW J. McKEOWN  
Acting Assistant Attorney General  
Environment & Natural Resources Division

MARTIN F. McDERMOTT  
Environmental Defense Section  
Environment & Natural Resources Division  
U.S. Department of Justice  
P.O. Box 23986  
Washington, D.C. 20026-3986

CAROLINE H. WEHLING  
Office of General Counsel (2355A)  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

Dated: February 2, 2007

Counsel for Respondent

## **JURISDICTION**

Petitioner seeks review of a final rule – the “Long Term 2 Enhanced Surface Water Treatment” or (“LT2”) Rule – promulgated by EPA. 71 Fed.Reg. 654 (Jan. 5, 2006). The LT2 Rule establishes additional requirements for public drinking water systems under the Safe Drinking Water Act (“SDWA”), 42 U.S.C. §§ 300f-300j-26,<sup>1/</sup> a statute designed to protect the public from illness or death caused by waterborne diseases, such as those caused by the parasite *Cryptosporidium*. This Court has jurisdiction under SDWA section 1448(a)(1), 42 U.S.C. § 300j-7(a)(1). The Petition was timely filed.<sup>2/</sup>

## **STATUTES AND REGULATIONS**

Some of the pertinent statutes and regulations appear in Petitioner’s appendix. An attached addendum includes additional materials.

## **STATEMENT OF THE ISSUES**

1. Whether Petitioner’s arguments about costs and benefits are irrelevant because the SDWA expressly requires EPA to set treatment standards for *Cryptosporidium*, which has no safe level of exposure, based on feasibility alone

---

<sup>1/</sup> SDWA citations herein are to the section numbers utilized in title XIV of the Public Health Service Act (sections 1401-1465).

<sup>2/</sup> As discussed infra at n.19, Intervenor New York City lacks standing to challenge the LT2 Rule.

and feasibility is uncontested here.

2. Whether EPA reasonably required that water stored in open reservoirs be treated or covered before being provided directly to people to drink.

3. Whether EPA reasonably required that water systems that do not filter their water must treat that water for *Cryptosporidium* before providing it to people to drink.

4. Whether EPA provided sufficient notice and opportunity for public comment where EPA's proposed rule specifically sought comment on the issues Petitioner now seeks to raise.

## **STATEMENT OF THE CASE**

### **A. Nature of the Case**

The SDWA generally applies to “each public water system in each State” and requires EPA to set standards for drinking water contaminants. Section 1412(b), 42 U.S.C. § 300g-1(b).<sup>3/</sup> Congress enacted the SDWA in 1974 “with the basic goal of protecting the purity of the drinking water provided by the nation’s public water systems.” United States v. Mass. Water Res. Auth., 256 F.3d 36, 38

---

<sup>3/</sup> Section 1401(4) defines “public water system” as “a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen service connections or regularly serves at least twenty-five individuals.” 42 U.S.C. § 300f-4. Portland and New York City operate public water systems, as does Amicus Walla Walla.

(1st Cir. 2001) (footnote omitted).

Nineteen years after the SDWA's enactment, contamination of Milwaukee's drinking water by the parasite *Cryptosporidium* sickened hundreds of thousands of people and caused numerous deaths. In response, EPA, working with a large group of stakeholders (including Portland), crafted a series of regulations designed to minimize waterborne diseases caused by organisms such as *Cryptosporidium*. In the 1996 SDWA amendments, Congress endorsed these rulemaking efforts and charged EPA with taking decisive action on *Cryptosporidium* to ensure that outbreaks such as Milwaukee's would never recur. The LT2 Rule represents the last of the *Cryptosporidium* rules in this rulemaking series.

Petitioner challenges only two aspects of the LT2 Rule: its requirements that (1) all unfiltered public water systems achieve at least 2-log (i.e., 99 percent) inactivation of *Cryptosporidium* (40 C.F.R. § 141.712(b)), and (2) public water systems using uncovered "finished water" storage facilities (i.e., open reservoirs) either protectively cover those storage facilities or treat the facilities' discharge to achieve (on a state-approved schedule) at least 2-log removal and/or inactivation of *Cryptosporidium* (40 C.F.R. § 141.714).<sup>4/</sup>

---

<sup>4/</sup> "Finished water" is water that is introduced into the distribution system of a public water system and is intended for consumption essentially without further treatment. 40 C.F.R. § 141.2. An "uncovered finished water storage facility" is a  
(continued...)

## **B. Statutory Background**

### **1. National Primary Drinking Water Regulations**

In 1974 Congress amended the Public Health Service Act to create the SDWA in response to “accumulating evidence that our drinking water contains unsafe levels of a large variety of contaminants,” Environmental Defense Fund, Inc. v. Costle, 578 F.2d 337, 339 (D.C. Cir. 1978), and to ensure “that water supply systems serving the public meet minimum national standards for protection of public health.” H.R. Rep. No. 93-1185 at 1 (1974), reprinted in A Legislative History of the Safe Drinking Water Act, at 533 (1982) (Comm. Print 1982) (“SDWA Legislative History”). Congress was particularly concerned with the large number of illnesses caused by waterborne contamination. Id. at 536.

Congress required EPA to promulgate “national primary drinking water regulations” to restrict the concentration of specific contaminants in public water systems. Sections 1412 and 1401(4), 42 U.S.C. §§ 300g-1 and 300f. To establish national primary drinking water standards, EPA first establishes a maximum contaminant level goal (“MCLG”), a non-enforceable health objective set at a level at which “no known or anticipated adverse effects” on the health of persons

---

<sup>4/</sup>(...continued)

tank, reservoir, or other facility used to store water that will undergo no further treatment and is open to the atmosphere. Id.

occur and that also incorporates “an adequate margin of safety.” Sections 1412(b)(4) and 1412(a)(3), 42 U.S.C. §§ 300g-1(b)(4) and (a)(3). Because there is no safe level of exposure to *Cryptosporidium*, EPA established an MCLG of zero for that parasite. 63 Fed.Reg. 69,478 (Dec. 16, 1998); 40 C.F.R. § 141.52.

SDWA section 1412(b)(4) requires EPA to establish an enforceable “maximum contaminant level” (“MCL”) that is as close to the MCLG as is feasible, unless EPA determines that it is not economically or technologically feasible to ascertain the level of the contaminant, in which case EPA establishes a “treatment technique” in lieu of an MCL.<sup>5/</sup> The treatment technique must prevent known or anticipated adverse effects on the health of persons to the extent “feasible.” Section 1412(b)(7)(A), 42 U.S.C. § 300g-1(b)(7)(A). “Feasible” is defined in section 1412(b)(4)(D) to mean “feasible with the use of the best technology, treatment techniques, and other means which the Administrator finds, after examination for efficacy. . . are available (taking cost into consideration).” Congress made clear that “feasibility” is to be interpreted relative to “what may reasonably be affordable by large metropolitan or regional public water systems.” SDWA Legislative History at 550. See also S. Rep. No. 104-169, at 3 (1995)

---

<sup>5/</sup> “Treatment technique” is any method of reducing a contaminant level other than through establishing a particular compliance level for that contaminant. Examples include filtration and reservoir covers. See, e.g., 40 C.F.R. §§ 141.70, 141.714.

(feasibility is based on best available technology affordable to “large” systems). Because available methods for detecting *Cryptosporidium* levels in water are incapable of routinely measuring the contaminant at the low levels necessary to protect public health, EPA relies on treatment technique requirements to reduce health risks from *Cryptosporidium* in drinking water. 71 Fed.Reg. at 658.

The SDWA specifies the analyses that EPA utilizes to establish a treatment technique as a drinking water standard. When proposing a treatment technique, section 1412(b)(3)(C)(ii) requires EPA to publish and request comment on an analysis of the health risk reduction benefits and costs likely be experienced through compliance with the treatment technique and alternative treatment techniques under consideration. Section 1412(b)(3)(C)(i). To the extent that a new standard is “based on science,” EPA is to use the “best available, peer-reviewed science and supporting studies conducted in accordance with sound and objective scientific practices.” Section 1412(b)(3)(A), 42 U.S.C. § 300g-1(b)(3)(A).

For most contaminants, EPA can adjust the final standard to a less stringent level based on the cost/benefit analysis. However, Congress expressly prohibited such adjustment for any treatment technique designed “for the control of *cryptosporidium*.” Section 1412(b)(6)(C), 42 U.S.C. § 300g-1(b)(6)(C) .

## **2. Standards for Cryptosporidium**

Congress's concern over microbiological contamination of our drinking water grew acute in the wake of a 1993 outbreak in Milwaukee when *Cryptosporidium* in tap water sickened over 400,000 people and caused over 100 deaths. H.R. Rep. No. 104-632, pt. 1, at 10 (1996). Thus, the 1996 SDWA amendments required EPA to strengthen regulations addressing *Cryptosporidium* and other microbiological contamination, and affirmed the rulemaking process already initiated by EPA. See S. Rep. No. 104-169, at 1, 46-48 (1995). New section 1412(b)(2)(C) required EPA to promulgate, in orderly succession, rules addressing controls for microbiological contamination ("surface water treatment" rules) and controls on harmful byproducts of the disinfection processes. The LT2 Rule was promulgated as a companion to the Stage 2 Disinfectants and Disinfection Byproducts Rule required under section 1412(b)(2)(C).

## **3. Implementation of Drinking Water Standards**

A state may assume "primary enforcement responsibility" for water utilities under state law if the state meets certain criteria, most notably adoption of requirements no less stringent than EPA's national primary drinking water regulations. Section 1413, 42 U.S.C. § 300g-2. The states with water systems involved in this litigation – Oregon and New York – have primary enforcement



under the SDWA. States must revise their primacy programs to adopt new or revised federal rules, 40 C.F. R. § 142.12, but these two States have not yet assumed primacy for the LT2 rule. EPA currently, albeit temporarily, implements the rule in these states.

Section 1415(a)(1)(B) allows a primacy state (or EPA in nonprimacy states) to grant a public water system a variance from a requirement to use a specified treatment technique for a contaminant if the system demonstrates the technique “is not necessary to protect the health of persons because of the nature of the raw water source of such system.” 42 U.S.C. § 300g-4(a)(1)(B).

## **C. Regulatory History**

### **1. Cryptosporidium**

Cryptosporidium is a protozoan parasite that when ingested can cause cryptosporidiosis, a gastrointestinal illness. 71 Fed.Reg. at 659. Ingestion of Cryptosporidium occurs through consumption of water or food contaminated with human or animal feces. Id. Cryptosporidium is commonly found in surface water used as drinking water supplies due to contamination from ubiquitous sources of fecal matter, including animal agriculture, wastewater treatment plants, birds, and

wild animals. Id. at 659. Cryptosporidium oocysts,<sup>9</sup> which may survive for months in surface waters, are of particular concern in drinking water systems because unlike other microbial pathogens such as bacteria and most viruses, Cryptosporidium oocysts are highly resistant to standard disinfectants. Id. at 559-660. Also, Cryptosporidium can pass through filtration. See 63 Fed.Reg. at 69,482.

A relatively small dose of Cryptosporidium, as low as one oocyst, may cause infection in healthy adults. See EPA Economic Analysis for LT2 Rule (“EA”) at 5-9 to 5-10, and Public Comment and Response Document (“RTC”) at 20-23. JA XX – XX and XX to XX. While infection of most healthy persons causes intestinal discomfort, symptoms may be far more severe, even fatal, for children, the elderly and the immuno-compromised. 71 Fed.Reg. at 660.

Cryptosporidiosis has no known cure. Id.

Cryptosporidium has caused a number of waterborne disease outbreaks since 1984, when the first U.S. cases were reported. Id. The reported number of cryptosporidiosis cases associated with drinking water substantially understates

---

<sup>9</sup> An “oocyst,” the form of Cryptosporidium present in the environment, is a parasitic single-celled organism approximately 4-5 microns in length and width. 71 Fed.Reg. at 659.

their actual incidence, although the precise extent of underreporting is unknown.

Id. at 661.<sup>7</sup>

## 2. Regulatory History for the LT2 Rule

EPA has established a series of treatment techniques to protect the public from exposure to microbial contamination in drinking water. In 1989 EPA established requirements to protect all drinking water systems that rely on surface (as opposed to ground) water. 54 Fed.Reg. 27,486 (June 29, 1989). The 1989 rule required disinfection, filtration for most systems, and watershed protection for systems that qualified for an exemption from filtration. See 71 Fed.Reg. at 658 (discussing prior regulations).<sup>8</sup> Because the first link between waterborne disease and *Cryptosporidium* was not reported until the 1989 rulemaking was underway, that rule did not address *Cryptosporidium*. See 63 Fed.Reg. at 69,482.

---

<sup>7</sup> It is widely accepted that most persons with cryptosporidiosis do not visit a doctor; those who do are often not tested for the disease; when tests are done, they may have a false negative; and even positive tests go unreported. See EA at 2-5, 2-6. JA XX, XX. See also NYC Br. at 23 (“one must assume that EPA is correct” that a “large number” of cryptosporidiosis cases are unreported.); NYC Comment at 5 JA XX (“many, if not most, cases will be missed”).

<sup>8</sup> Portland and New York City operate public water systems that have qualified for exemption from filtration. In lieu of installing costly filtration, their exemption requires them to protect the watersheds where their drinking water originates. Their continuing exemption from filtration is not at issue here.

In 1992 EPA convened a large group of entities with responsibility for water systems, together with other experts and interested parties, to develop a strategy to combat microbial contaminants. Id. This “stakeholder” group recommended a two-stage process in which a first set of regulations (Stage 1) would be followed by data gathering and further regulations (Stage 2). See 63 Fed.Reg. at 69,482. Congress affirmed this approach in 1996. Section 1412(b)(2)(C), 42 U.S.C. § 300g-1(b)(2)(C).

On December 16, 1998, EPA issued its Stage 1 rules, including an “Interim Enhanced Surface Water Treatment” rule (63 Fed.Reg. 69,478). Because there is no known safe level of ingestion of *Cryptosporidium*, that rule established an MCLG of zero for *Cryptosporidium*. It also established initial *Cryptosporidium* treatment requirements for filtered systems and required covers on all new finished water storage reservoirs. Although these 1998 rules did not address existing open finished water storage facilities, EPA stated that it would consider requiring covers on existing facilities in subsequent rules. 63 Fed.Reg. at 69,493.<sup>27</sup>

The stakeholders made further recommendations for a “Stage 2” set of rules.

---

<sup>27</sup> The 1998 rules applied only to large public water systems (serving 10,000 or more persons). The requirements were extended to small systems in the “Long Term 1 Enhanced Surface Water Treatment” or “LT1” Rule.” 67 Fed.Reg. 1812 (Jan. 14, 2002).

See 65 Fed.Reg. 83,015 (Dec. 29, 2000). Their consensus recommendations for the proposed LT2 Rule included Cryptosporidium inactivation by all unfiltered public water systems, and action to address “longstanding concerns over risks from uncovered finished water reservoirs,” 65 Fed.Reg. at 83,016, by requiring a cover or treatment at existing uncovered finished water reservoirs unless the implementing agency approved a “risk mitigation plan.” Id. at 83,022.<sup>10/</sup> The recommendations acknowledged that EPA would consider “all relevant comments” and would make “such modifications to the proposed rule(s) and preamble(s) as EPA determines are appropriate when issuing a final rule.” Id. at 83,017. Portland signed the recommendations as a representative of unfiltered water systems. Id. at 83,023.

### **3. The Proposed LT2 Rule**

EPA’s proposed LT2 Rule reflected the stakeholder recommendations. 68 Fed.Reg. 47,640 (Aug. 11, 2003). Its preamble detailed the underlying data and, where relevant, noted any data uncertainties. Id. at 47,650-58. Based on new data showing that overall Cryptosporidium levels are higher in the tap water of

---

<sup>10/</sup> A risk mitigation plan would be an approved site-specific plan for an uncovered reservoir, addressing matters such as access, run-off, animal/bird waste, and on-going water quality assessment. 65 Fed.Reg. at 83,022.

unfiltered water systems than of filtered systems, EPA proposed to establish Cryptosporidium treatment requirements for unfiltered systems, with the required level of treatment dependent upon the level of source water contamination. 68 Fed.Reg. at 47,670.

EPA's proposed LT2 Rule expressed continuing concern with contamination in open finished water reservoirs. Id. at 47,649.<sup>11/</sup> EPA cited potential contamination from surface water runoff, algal growth, insects and fish, bird and animal waste, airborne deposition, and human activity. Id. at 47,718. Due to these risks, the proposed rule contemplated broadening the established ban on new construction of open finished water storage facilities by requiring existing open finished water reservoirs to be covered or to treat their water before it is distributed to consumers unless the system had in place an approved risk mitigation plan. Id. at 47,718-19.<sup>12/</sup> Under the heading "Request for Comment," id. at 47,719, EPA specifically sought input on the proposed requirements for such

---

<sup>11/</sup> While there are many thousands of covered finished water reservoirs, 71 Fed.Reg. at 715, EPA found only 81 uncovered reservoirs nationwide, a 90 percent decline in such reservoirs over the past 30 years. Id. at 739; EPA Uncovered Reservoirs Guidance Manual at 1-3.

<sup>12/</sup> Systems that are both unfiltered and have open finished water reservoirs do not need to treat the water twice. They must simply meet the Cryptosporidium and other treatment requirements before the water is distributed to consumers.

open storage facilities:

\* Is it appropriate to allow systems with uncovered finished water storage facilities to implement a risk management plan or treat the effluent to inactivate viruses instead of covering the facility?

\* If systems treat the effluent of an uncovered finished water storage facility instead of covering it, should systems be required to inactivate *Cryptosporidium* and *Giardia lamblia*, since these protozoa have been found to increase in uncovered storage facilities?

The proposed rule (id. at 47,738-58) contained an Economic Analysis, which included the elements specified for cost/benefit analysis under section 1412(b)(3)(C). It detailed the costs and benefits – quantifiable and nonquantifiable – of each treatment technique, including the requirements for uncovered finished water reservoirs. See, e.g., id. at 47,750, Table VI-12. EPA invited comment on “all aspects of the proposed rule’s economic impact analysis.” Id. at 47,758. EPA received nearly 200 public comments on the proposed rule, including comments from Portland and New York City.<sup>13/</sup> EPA’s RTC comprises more than 2000 pages.

#### **4. The Final Rule**

---

<sup>13/</sup> Amicus Walla Walla submitted a single paragraph requesting an exception from the treatment requirements for unfiltered systems. The other Amici — Oregon Wild and the Oregon Chapter of Physicians for Social Responsibility (together “Oregon Wild”) – did not participate in the rulemaking.

The 2006 LT2 rule finalized (without change) the proposed requirement that unfiltered systems treat for *Cryptosporidium*. Regarding uncovered finished water reservoirs, EPA reiterated its longstanding concerns about contamination of open water storage. 71 Fed.Reg. at 713-14. EPA noted that public health agencies such as the American Public Health Association and the United States Public Health Service, and water utility organizations such as the American Water Works Association (“AWWA”), had recommended for decades that all finished water reservoirs, not just new ones, be covered. Id. at 714.

EPA explained the final rule’s changes, based on comments received on the proposal. EPA noted that various commenters had criticized the proposed treatment required for uncovered finished water storage reservoirs (virus disinfection) by pointing out that such treatment would result in virtually no reduction in *Cryptosporidium* or *Giardia* because they resist standard disinfectants. Id. at 715. EPA revised the rule by requiring treatment of uncovered waters that is the same as the treatment required for raw waters at unfiltered systems, i.e., 2-log *Cryptosporidium*, 3-log *Giardia*, and 4-log virus inactivation. Id. at 714-15.<sup>14/</sup>

Also following public comment, EPA eliminated the proposed option for a

---

<sup>14/</sup> Here, “4-log virus inactivation” means 99.99 percent removal or inactivation of the virus; “3-log” means 99.9 percent.



risk mitigation plan as an alternative to covering or treating water from open finished water reservoirs. Although some commenters (though not Portland) expressed support for the risk mitigation option, others noted more persuasively that it would not be possible to develop a mitigation plan that would make an open water reservoir as protective as a covered reservoir, due to the myriad sources of contamination in the environment and due to an open reservoir's inherent vulnerability to intentional contamination. Id. at 715. Because the SDWA requires EPA to establish treatment techniques that prevent adverse health effects to the extent feasible, EPA was persuaded that the risk mitigation plan option would not meet SDWA requirements. Id. at 714.

#### **D. The Portland And New York City Public Water Systems<sup>15/</sup>**

---

<sup>15/</sup> Portions of the following discussion rely on materials from reliable, albeit non-record, sources. These materials are not for the defense of the rule on the merits, which of course is limited to the record in existence when the rule was promulgated. In addition, some of these materials are relevant to the issue of standing, particularly of Intervenor New York City. Also, Portland admittedly relies (Br. at 9-10) on non-record information concerning its water system. That one-sided, extra-record information should not be considered by the Court since Portland has never filed a motion to supplement the record nor, as explained herein, could such a motion be justified given the ample opportunity to comment afforded to Portland during the rulemaking. Although Portland's failure to submit comments on these issues deprived EPA of the opportunity to formally address these issues in the rulemaking record, the information provided herein at least gives the Court some sense of the flaws in Portland's new arguments and a more complete picture of recent developments involving Portland's water distribution (continued...)

Portland and New York City both have open finished water reservoirs that store water from unfiltered source waters. The nature of the watersheds where their tap water originates allows both cities to avoid EPA's "filtering" requirements for drinking water systems. Filtration is the most fundamental treatment process required by EPA to protect water supplies against microbial contamination. Cities that can utilize protected watersheds often do so to avoid filtration's expensive initial treatment requirements.

While these watershed areas are not "pristine" in the sense that there is no possibility of contamination, they are protected from many sources of human contamination through controls on or, in Portland's case, the absence of discharges to surface waters from sewage and industrial plants, forest clearing, and agriculture. These areas, of course, remain inhabited by wild animals and birds that have been shown to be sources of *Cryptosporidium*. 71 Fed.Reg. at 659-60.

In contrast to the relatively protected watersheds where the drinking water originates, at the last point before the drinking water is distributed to consumers both Portland and New York City store that unfiltered water in open (uncovered) reservoirs located in the midst of metropolitan areas. Portland's reservoirs are

---

<sup>15/</sup>(...continued)  
system.

located in popular city parks (Portland Br. at 10); New York's Hillview Reservoir is in densely-populated Yonkers.<sup>16/</sup> The finished water leaving Portland's reservoirs and the Hillview Reservoir is distributed to consumers' taps with no treatment for *Cryptosporidium*.

Although Portland's brief does not discuss the matter, it was documented in the Portland press that in May 2002, Portland's City Council deemed its open reservoirs vulnerable to contamination and voted to cover some of its reservoirs and bury others. The City purchased covers (221,000 square feet in size), at a cost approaching one-half million dollars, before cancelling the project and listing the covers for sale on eBay in 2004.<sup>17/</sup> Portland does discuss its reservoirs' fences (Br. at 10), but neglects to mention that in 2003, a man scaled the fence at its Mt. Tabor drinking water reservoir; later, a dive team recovered his body from the open reservoir.<sup>18/</sup>

---

<sup>16/</sup> Yonkers, which is situated several miles from Manhattan and bordered on the south by the Bronx, is the fourth largest city in New York State. See <http://www.cityofyonkers.com/discover/generalpage.htm>. The Hillview Reservoir is located just east of the Thomas E. Dewey Thruway, next to the Yonkers Raceway.

<sup>17/</sup> These events are discussed in a series of articles in the Portland Oregonian. See <http://www.oregonlive.com/special/terror/index.ssf/?special/terror/reservoirs.html>.

<sup>18/</sup> See [http://www.portlandtribune.com/news/story.php?story\\_id=16055](http://www.portlandtribune.com/news/story.php?story_id=16055). The  
(continued...)

While Portland strives to convey the impression that its water supply is free of Cryptosporidium, Portland's submission to EPA admitted that Cryptosporidium has been detected in its water supply (see LT2 White Paper at 6, 16) (JA XX,XX) and that there have been documented cases of cryptosporidiosis that may be linked to Portland's water supply (id. at 7) (JA XX). During EPA's data collection for the LT2 Rule, Cryptosporidium was detected in 7 out of 41 samples taken from Portland's Bull Run Reservoir. That data was confirmed in a study by LeChevallier et al., Comparison of Method 1623 and Cell culture-PCR for Detection of Cryptosporidium in Source Waters, 69 Applied and Envtl. Microbiology 971-79 (2003) (cited in EA at 5-25) (JA XX). That study of six watersheds, including Portland's Bull Run, detected infectious Cryptosporidium oocysts in all six. In Portland's source water, the study detected Cryptosporidium oocysts in almost 10 percent of samples. The authors concluded (at 978): "The practical application for water utilities is to assume that all source waters are potential risks for transmission of cryptosporidiosis, even if the occurrence and frequency of oocyst detection are low." Further, Portland's largest customer, the Tualatin Valley Water District, which serves 200,000 persons, has recommended

---

<sup>18/</sup>(...continued)

article quotes then-Mayor Vera Katz as stating: "This incident illustrates that our open reservoirs are vulnerable to public safety and security hazards."

full treatment of the water distributed from Portland's reservoirs due to unacceptable risks of cryptosporidiosis, violations of drinking water standards, and concerns over possible catastrophic events affecting source waters (landslides, forest fires). White Paper attach. 3 at 1-2) (JA XX-XX).

Because of pre-LT2 Rule violations of federal and New York State drinking water standards for bacterial contamination, New York City has been under a State order to cover the Hillview Reservoir since 1996. See Ex. A attached hereto. The City has yet to install the mandated cover, however, despite substantial fines and the City's assurance to the State that it "is prepared to move ahead with the program to cover Hillview Reservoir." Id. (Nov. 16, 2001 letter to State at 3).

### **STANDARD OF REVIEW**

This Court reviews rulemaking proceedings and agency final rules under the Administrative Procedure Act ("APA"), 5 U.S.C. §§ 551-559, 701-706, and will uphold an EPA action unless it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." Int'l Fabricare Inst. v. EPA, 972 F.2d 384, 389 (D.C. Cir. 1992) (quoting 5 U.S.C. § 706(2)(A)).

Petitioner's statutory interpretation claims are to be reviewed under the deferential standard of Chevron U.S.A., Inc. v. NRDC, 467 U.S. 837 (1984). The

Court should determine first whether the meaning of the statute is clear, in the light shed by traditional tools of statutory construction. Id. at 842-43. If the Court determines that the statute's meaning is unclear, the Court must defer to EPA's interpretation if it is "permissible." Id. at 843. EPA merits this deference because it is the governmental body charged with administering the SDWA, and has the "expertise as well as the authority to reconcile conflicting policies." Chevron, 467 U.S. at 844. Further, when, as here, an agency "is evaluating scientific data within its technical expertise," an "extreme degree of deference to the agency" is warranted. City of Waukesha v. EPA, 320 F.3d 228, 247 (D.C. Cir. 2003) (citations omitted).

## **SUMMARY OF ARGUMENT**

Cryptosporidium is a drinking water contaminant of such concern to Congress that it expressly forbade EPA from applying cost and benefit analyses to adjust treatment standards for that contaminant. Because of this express prohibition, which neither Petitioner nor Intervenor even mentions, their arguments are essentially irrelevant. There is no disagreement that Cryptosporidium is harmful in any amount and that the requirements in the challenged LT2 Rule reduce the risk of the sometimes fatal disease cryptosporidiosis. Nor is it contested that compliance with the LT2 Rule by

Petitioner and Intervenor will cost only a few dollars per year per household and is therefore feasible. In the end, Portland's challenge to the rule amounts to little more than a quarrel over the fine points of EPA's cost and risk estimates, but such details matter not at all since Congress forbade EPA from weighing the costs and benefits in establishing the challenged requirements. The Cities' other arguments are equally unpersuasive, in the face of EPA's extensive rulemaking record and full compliance with notice and comment requirements.

Petitioner and Intervenor obscure matters by focusing on issues such as whether somewhat fewer people become sick with cryptosporidiosis than EPA has calculated. Almost lost amongst the intricacies of the Cities' calculations is that the requirements in the LT2 Rule are grounded on common sense. EPA reasonably requires open reservoirs that serve water directly to the public to be protected from *Cryptosporidium* and other contamination to the extent feasible, and reasonably requires water systems that do not filter their water to achieve the same public health protection against *Cryptosporidium* as filtered systems. Cities have previously been barred from constructing new open finished water reservoirs and the Court should defer to EPA's finding that it is time for Portland and New York City to retrofit their older systems accordingly. EPA's requirements reduce the risk to the public of drinking contaminated water from these unfiltered water

systems. The rule is fully consistent with Congress's direction to EPA and should be upheld.

## ARGUMENT

### **I. EPA'S TREATMENT TECHNIQUES FOR CRYPTOSPORIDIUM ARE FEASIBLE AND THEREFORE REQUIRED BY THE SDWA**

In 1998 EPA set a maximum contaminant level goal (MCLG) for Cryptosporidium of zero, meaning that there is no safe level at which consumers can be exposed to it in drinking water. Because methods for routinely determining low levels of Cryptosporidium in drinking water are unavailable, EPA has not established a maximum compliance level (MCL) for Cryptosporidium. Instead, EPA has regulated Cryptosporidium through treatment techniques, as authorized under section 1412(b)(7). A treatment technique must "prevent known or anticipated adverse effects on the health of persons to the extent feasible." *Id.* 42 U.S.C. § 300g-1(b)(7)(A).

Here, it is uncontested by Portland and New York City<sup>19</sup> that the LT2 Rule

---

<sup>19</sup> New York City (which elected not to file a petition for review) admits (Br. at 7 n.6) it lacks standing to challenge the LT2 Rule's treatment requirements for unfiltered systems because the City is in the process of installing such treatment to meet other requirements. Although its brief does not mention it, the City also is already under the aforementioned State order to cover the Hillview Reservoir.

(continued...)



– which requires treatment for Cryptosporidium by water utilities that do not filter their water and treatment of water that utilities have stored in open reservoirs prior to distribution to consumers – prevents anticipated adverse health effects and is feasible. The rule should be upheld on this basis alone.

Cryptosporidium’s zero MCLG went unchallenged in 1998 and is not challenged here. Therefore, it is uncontested that any amount of Cryptosporidium in drinking water is potentially unsafe for people to drink. It is also uncontested here that the treatment techniques promulgated in the LT2 Rule requiring treatment for Cryptosporidium reduce human exposure risks from that contaminant, although Portland and New York quarrel with the extent of that reduction. See Portland Br. at 20, 39-45; NYC Br. at 18-26.<sup>20/</sup> Finally, it is uncontested that the treatment techniques in the LT2 Rule requiring treatment for

---

<sup>19/</sup>(...continued)

These two requirements are all that is at issue in this case and, and thus, New York City has, at most, a minimal stake in this case’s outcome and therefore lacks standing to challenge the rule. See Alabama Mun. Distrib. Group v. FERC, 300 F.3d 877, 879 (D.C. Cir. 2002) (intervenors must satisfy requirements of Article III standing). Because New York City lacks standing, its brief should be disregarded.

<sup>20/</sup> Portland’s and New York’s submissions to EPA acknowledge that Cryptosporidium has been found in their water supplies. White Paper at 6; NYC Comment at 7. Portland also advised EPA that “state and local public health agencies are well aware of the problem of cryptosporidiosis in our community.” White Paper at 6-7 (JA XX).

Cryptosporidium by unfiltered systems and open water storage systems are “feasible” for Portland and NYC. Neither City ever raised issues concerning the efficacy of the treatment requirements or their ultimate affordability. Indeed, EPA estimated that the average annual household cost of the rule would be less than \$12. 71 Fed.Reg. at 743, Table VI-E.1. See also White Paper at 9 (JA XX) (confirming these cost estimates for Portland, by noting that installation of ultraviolet treatment would raise residential water rates by only “\$1 per month”); Portland 2004 Comment at 6 (JA XX) (estimating costs of covering reservoirs to be approximately one million dollars per reservoir, which would add about one dollar per year to household water bills).

As a result, this controversy centers on irrelevant challenges to EPA’s cost/benefit analysis for the rule. While such analysis is required when a treatment technique rule is promulgated, the analysis is merely informational. In contrast to a rulemaking establishing an MCL, where Congress requires EPA to “publish, seek public comment on, and use” the cost/benefit analysis in EPA’s decisionmaking, see section 1412(b)(3)(C)(i), 42 U.S.C. § 300g-1(b)(3)(C)(i) (emphasis added), when EPA establishes a treatment technique the SDWA requires only that EPA “publish and seek public comment on” – not “use” – the associated cost/benefit analysis. Section 1412(b)(3)(C)(ii), 42 U.S.C. § 300g-

1(b)(C)(ii).<sup>21/</sup> By mandating use of a cost/benefit analysis in the former situation but not the latter, Congress intended that EPA undertake such analysis for each treatment technique rule (such as LT2) but did not require EPA to utilize it for decisionmaking in that situation.

Even more important, Congress specifically mandated that cost/benefit balancing not play a part in EPA's determination of the feasible standard for Cryptosporidium rules. See SDWA section 1412(b)(6)(C) (EPA may not use cost/benefit analysis to establish treatment technique "for the control of cryptosporidium").<sup>22/</sup> See also H.R. Rep. No. 104-741, at 87 (1996) (Conf. Rep.) (SDWA "precludes" cost balancing by EPA when establishing Cryptosporidium treatment technique). Because the challenged treatment for Cryptosporidium is undisputably feasible and reduces risks posed by that parasite in drinking water, the LT2 Rule must be upheld. The elaborate cost/benefit arguments of Petitioner and Intervenor – neither of whom even mentions section 1412(b)(6)(C) – are

---

<sup>21/</sup> In addition, this provision merely requires EPA to take cost/benefit factors into account "as appropriate," thus emphasizing the discretionary nature of EPA's consideration of costs and benefits in establishing treatment techniques.

<sup>22/</sup> EPA discussed section 1412(b)(6)(C) in the proposed LT2 Rule's preamble. See 68 Fed.Reg. at 47,645.

simply irrelevant.<sup>23/</sup>

While ignoring the foregoing provisions, Portland (Br. at 16) cites section 1412(b)(6)(D), 42 U.S.C. § 300g-1(b)(6)(D), a limited judicial review provision, in support of its argument that it can challenge the specifics of EPA's cost/benefit analysis. However, that general provision does not override the specific limitations that section 1412(b)(6)(C) imposes on EPA's use of cost/benefit analysis when promulgating *Cryptosporidium* rules. Further, as confirmed by Senate Report No. 104-169 (1995), section 1412(b)(6)(D) itself was intended to limit judicial review of any costs/benefits analysis for drinking water regulations.

The objective is to prevent litigation challenging the values that the Administrator implicitly assigns to preventing death and disease when the Administrator determines that the benefits of a rule do or do not justify the costs. A Federal court action under section 1448 is not the appropriate forum in which to decide the precise value of a human life or the costs that are appropriately incurred for precautionary and preventive public health measures.

---

<sup>23/</sup> The Court should disregard Walla Walla's amicus brief, which argues that EPA should have promulgated an MCL instead of a treatment technique for *Cryptosporidium*, an issue no one raised during rulemaking. A fundamental principle of the *Cryptosporidium* rules is that there can be no MCL for *Cryptosporidium* because methods are unavailable to routinely detect it at acceptable treated water levels. As a result, it is not "feasible to ascertain the level of the contaminant," and EPA is authorized to set a treatment technique under section 1412(b)(7)(A), 42 U.S.C. § 300g-1(b)(7)(A). The rule's monitoring requirements function to screen out systems with particularly contaminated water such that even more treatment is necessary. These monitoring levels are many times higher than acceptable treated water levels.

Senate Report No. 104-169, at 37 (1995). The Report went on to state that a court may only set aside a SDWA rule in this context if EPA had prepared “no cogent analysis of the costs and benefits.” Id. (Emphasis added).

But a court is not to examine the values that the Administrator brings to bear on these decisions. These determinations are delegated by the Congress solely to the Administrator.

Id. Here, EPA performed a detailed cost/benefit analysis and included it in the record. As a result, even if section 1412(b)(6)(C) did not preclude use of cost/benefit analysis, section 1412(b)(6)(D) effectively precludes judicial review of the details of that analysis, or at the very least, mandates an exceptionally deferential standard of review for EPA’s analysis.<sup>24/</sup>

## **II. EPA’S REQUIREMENT THAT OPEN FINISHED WATER RESERVOIRS BE COVERED OR TREATED IS CONSISTENT WITH THE STATUTE AND IS REASONABLE**

As part of EPA’s effort to address risks from the relatively few remaining open finished water reservoirs that still provide water directly to consumers, the proposed LT2 Rule set out options recommended to EPA by stakeholders, namely:

---

<sup>24/</sup> In City of Waukesha, 320 F.3d at 240-41, this Court held in a different context that where a SDWA cost-benefit analysis “would have no consequence,” EPA was “justified in concluding that Congress did not intend to require it to undertake such a futile exercise.” Here, EPA completed a thorough cost-benefit analysis, but submits that because Congress precluded that analysis from being used to adjust the treatment technique, by implication the legislature also precluded judicial review of the particulars of that analysis.

cover the reservoir; provide virus disinfection; or be subject to a State-approved “risk mitigation” plan of some kind.<sup>25/</sup> Commenters on the proposal ranged from those who thought additional requirements were unnecessary (RTC at 10-6) (JA XX) to those who thought it unacceptable that EPA would even consider allowing finished water reservoirs to remain uncovered. (RTC at 10-9, Comment of City of Cheyenne Board of Public Utilities) (JA XX). EPA reconsidered the proposed open finished water reservoir requirements and in the final rule required treatment for *Cryptosporidium* (as well as viruses) and eliminated the risk mitigation option on the ground that no feasible control measures for utilities would be effective against all sources of contamination of open reservoirs. 71 Fed.Reg. at 714. Because other, more protective options – covering the reservoirs or treating their water prior to distribution to consumers – were feasible, EPA eliminated the risk

---

<sup>25/</sup> Portland’s claim (Br. at 14) that the open reservoir requirements were an “evident afterthought” is unsupportable. As EPA noted in the rule’s preamble, 71 Fed.Reg. at 714, open reservoirs have been of longstanding concern to regulators charged with ensuring the safety of public water supplies. In addition, open reservoirs have been the subject of both a prior rulemaking (the 1998 rules, which banned construction of new open finished water reservoirs) and the stakeholder recommendations in 2000, 68 Fed.Reg. at 47,650, as well as the subject of additional data collection and requirements. *Id.* at 47,718-19. Portland complains that EPA’s discussion of this issue comprises only a few pages in the rule’s preamble and that only 20 pages in EPA’s RTC addressed the issue. Given that this issue affects relatively few systems in only a handful of states, nothing more would be expected.

mitigation option as inconsistent with the SDWA's requirement that treatment techniques prevent adverse health effects to the extent feasible. Id. EPA's findings are reasonable and supported by the record.

Neither Portland nor New York City argues that covering or treating the water from their open reservoirs is infeasible. Nor could they, since these techniques are available and cost at most a few dollars per household and so are "affordable" for these large systems. Instead, they quarrel with EPA's informational cost/benefit analysis, specifically with how EPA calculated the costs (NYC Br. at 26); whether the cost analysis for the requirement to cover or treat the water from the reservoirs is inconsistent with the statute (Portland Br. at 14-17); and the record support for these requirements (id. at 18-25 and NYC Br. at 11-18). Portland also claims (Br. at 25-30) it was denied an opportunity to comment on elimination of the risk mitigation option, and uses that claim as a pretext for attempting to supplement the record. The first two arguments are irrelevant and the remaining ones are refuted by the record.

**A. EPA's Analysis Of Costs And Benefits Of The Treatment Techniques Was Consistent With The SDWA.**

In its proposed rule, EPA evaluated the costs and benefits of covering or treating water from open reservoirs. 68 Fed.Reg. at 47,750. EPA requested

comment on its Economic Analysis, id. at 47,758, and reevaluated these costs and benefits in the final Rule based on such comments. 71 Fed.Reg. at 741-42; RTC 20.4.1(C) at 20-58 (JA XX-XX). EPA did not use these costs and benefits to adjust the rule's requirements, because that is prohibited by section 1412(b)(6)(C), 42 U.S.C. § 300g-1(b)(6)(C). EPA's analysis is consistent with the statute, reasonable, and should be upheld.

Both Portland and New York City challenge elements of EPA's Economic Analysis. While Portland argues (Br. at 14-17) that EPA improperly aggregated costs and benefits, it is hard to understand Portland's claim that it has been harmed by the manner in which EPA addressed the rule's costs and benefits. A determination whether costs are justified by benefits is relevant to other drinking water standard-setting because if the costs of those rules are not so justified, EPA can (but is not required to) alter a final maximum contaminant level. This is manifestly not so for Cryptosporidium rules. The statute could hardly be clearer – it expressly prohibits EPA from using any cost/benefit determination to alter its choice of treatment techniques for Cryptosporidium control. See section 1412(b)(6)(C), 42 U.S.C. § 300g-1(b)(6)(C). Even if EPA had determined that the costs of the new open reservoir requirements were not justified by the benefits, EPA would not have had authority to change the rule's requirements on that



ground. Portland's argument that the Economic Analysis "may have concealed" that the costs of the open reservoir requirement "outweighed" the benefits, even if it were true, is irrelevant.

Portland also argues that because EPA's determination that the rule's benefits justify its costs "aggregated" the costs and benefits, EPA acted inconsistently with the statute.<sup>26/</sup> This argument is unpersuasive for several reasons. First, EPA specified in the preambles to the proposed and final rules what the expected costs and benefits of covering or treating open water reservoirs would be. 68 Fed.Reg. at 47,751 and 71 Fed.Reg. at 742. EPA adjusted the costs in the final rule based on a more accurate count of these reservoirs and in response to commenters (including, e.g., New York City) who argued that EPA's estimates for covering or treating were too low. (RTC 20-57 to 20-58) (JA XX-XX). The rule's preambles and supporting Economic Analysis documents provided Portland with exactly the information it claims is lacking to assess the costs of this specific treatment technique. See EA Appendix I (JA XX).

Second, the statute simply does not dictate how EPA should make its determination. EPA's statutory interpretation – that a determination that the

---

<sup>26/</sup> EPA's determination that the rule's benefits justify its costs is at 71 Fed.Reg. at 749 (rule "provides a large reduction in endemic cryptosporidiosis illness and mortalities").

benefits of the rule justify its costs may properly be accomplished by assessing the impacts of the entire rule rather than item-by-item within the rule – is reasonable and must be upheld under Chevron.

New York City argues (Br. at 26-29) that EPA underestimated the costs of the open reservoir requirements and failed to respond to comments on that alleged underestimation. Its argument that EPA underestimated the cost of covering Hillview Reservoir fails for the same reason Portland's does – the issue is whether the rule is feasible, and neither New York City nor anyone else challenges EPA's finding that it is. Moreover, New York City fails to explain how the 2006 LT2 Rule imposes any costs on it. The rule simply requires that a water system be under a State-approved schedule by April 1, 2009, to cover its open finished water reservoirs or to install treatment. 40 C.F.R. § 141.714(c); 71 Fed.Reg. at 777. Because New York City has since 1996 been under a State order to cover due to proven contamination of the City's drinking water, this new rule has no direct effect on the City.

Finally, while the ultimate cost of compliance at any particular water system may vary from EPA's estimates, the estimates in the LT2 Rule are not for individual systems but are estimated average costs for systems by size category. EA at I-2 (JA XX). Some systems will have costs that are greater than average,

others will have less. Since New York City's open reservoir is one of the largest, it is possible that its costs might be higher than average.<sup>27/</sup> But nothing in the rule turns on any precise calculation of individual costs, and the possibility that one system has higher than average costs makes no difference to the result. Both the cost estimates and EPA's response to comments on this issue, RTC 20-57 to 20-58 (JA XX-XX), are reasonable.

**B. EPA's Requirement That Water Stored In Open Reservoirs Be Treated Before Being Provided To Consumers Is Well Supported By The Record.**

Consistent with stakeholder recommendations, EPA proposed to require the nation's relatively few remaining open finished water reservoirs to be covered, treated by disinfection, or subject to state-approved mitigation plans. The proposal was based on data analyzed since the 1998 SDWA rules that confirmed earlier studies showing that water quality degrades in open finished water storage facilities over time, and specifically showing increases in fecal coliform, Giardia and Cryptosporidium. 68 Fed.Reg. at 47,719. Contrary to New York's argument (Br. at 11-17) that EPA's requirements for uncovered reservoirs relied on a "single

---

<sup>27/</sup> Portland cites (Br. at 10) what it claims are its projected costs for burying several of its water storage facilities and covering several others. The LT2 Rule does not require that storage of water be underground (a more expensive option), only that the water be covered or treated.

study” (LeChevallier), EPA relied on several studies documenting increases in contamination in a variety of reservoirs in different parts of the country. See RTC 10-16, Response 10.4 (noting, in addition to LeChevallier’s 1997 study,<sup>28/</sup> previous studies by the AWWA, Silverman (1983) and Pluntze (1974)) (JA XX); see also 68 Fed.Reg. at 47,718–19 (describing additional studies by Graczyk (1996), Geldreich (1990), Fayer (1986) and Current (1986)).

EPA received a range of comments on its LT2 proposal. While some commenters supported it, some thought its requirements were unnecessary (see, e.g., RTC 10-2) (JA XX). Yet another group of commenters strongly opposed the proposed options as insufficiently protective. These commenters stated that all reservoirs should be covered or that the treatment option should include treatment for *Cryptosporidium*. RTC 10-8 thru 10-15 (JA XX-XX). Notably, Portland concedes that it failed to make any case (factual or legal) during the rulemaking for the arguments it now advances against the LT2 Rule’s requirements for finished water reservoirs. See Portland Br. at 9-10, 30).<sup>29/</sup>

---

<sup>28/</sup> Protozoa in Open Reservoirs, 89 J. AWWA 84-96 (1997). Dr. LeChevallier is a prominent reseacher in this field. Id. at 96.

<sup>29/</sup> Portland claims it failed to comment on these matters because it assumed the matter was already “settled” when the proposed rule was issued. Then, relying on its unsupportable contention that it lacked “adequate notice” that EPA intended to  
(continued...)

In the final LT2 Rule, EPA eliminated the risk mitigation option, in agreement with commenters who pointed out that no mitigation plan can result in protection equal to covering the open water. EPA specifically discussed alternative “risk mitigation” measures and explained why they are insufficient. EPA explained that while such control measures can provide “a degree of protection against some sources of contamination of open reservoirs (e.g. bird deterrent wires, security fences with setbacks),” public water systems are “significantly constrained in the degree to which they can implement such measures with existing open reservoirs” due to factors such as reservoir size, location (e.g. within residential communities or parks), and existing infrastructure. RTC at 10-1 to 10-2 (JA XX-XX).<sup>30/</sup> EPA reasonably concluded that no system could implement control measures that would be effective against all sources of

---

<sup>29/</sup>(...continued)

treat the Agency’s proposed rule as just that – a proposed rule – Portland improperly proceeds to supplement the record with information never submitted to EPA during the rulemaking. See Portland Br. at 9-10. In any event, Portland’s Jan. 8, 2004 Comment letter acknowledged that “the options presented for dealing with uncovered finished water reservoirs are the realistic solutions for dealing with potential microbial contamination for such facilities,” and further noted the City’s “growing concern” with “security issues” for the open reservoirs. Portland 2004 Comment at 6 (JA XX).

<sup>30/</sup> Bird deterrent wires are designed to discourage flocks from landing, but do not prevent birds from flying over or landing on the water.

contamination. EPA also concluded that an alternative that relied on monitoring for these pathogens at the very low levels that cause health concerns was not possible. Id.

Portland argues for the first time on appeal that the record is insufficient because it did not contain test results “mandated by EPA” for *Cryptosporidium* in open finished water reservoirs (Br. at 18-19); that Portland’s reservoirs are different from those for which EPA has data (id. at 20); and that comments did not support changes from the proposal (id. at 21-25). New York (Br. at 11-18) argues that EPA improperly relied on the 1997 LeChevallier study. These arguments lack merit.

With respect to the data on open finished water reservoirs, the proposed and final rule’s preambles and the RTC document describe and cite the various studies – not just one – EPA relied on to document the hazards of open water storage. Whether these studies were “mandated by EPA” does not, of course, affect their value. There are ample test results on finished open reservoirs to document the degradation of waters in those reservoirs by algae, coliform and other bacteria, particulates, insects, *Giardia* and *Cryptosporidium*. RTC 10-1 and 10-8 (JA XX, XX). No commenter during the rulemaking raised any issues concerning the validity of these studies or their results, or provided contrary studies.

Portland focuses (Br. at 8) on the supposedly “unique” quality of the Bull Run headwaters. Even with respect to these so-called “protected” source waters, Portland states only that “most” – but not all – sources of *Cryptosporidium* are excluded and that only the “principal” anthropogenic *Cryptosporidium* sources are absent. Portland Br. at 8. This narrow focus misses the obvious point that even if the source water is somewhat protected, the source water is subject to manifold forms of degradation as it resides, open to the air, in urban reservoirs. Obviously, fencing cannot prevent small animals from gaining access to the reservoirs; nor is fencing any guarantee that people will not scale the fences or throw noxious materials over or through them.<sup>31/</sup> With respect to Portland’s urban reservoirs, the City asserts, tepidly, that its reservoirs could in the future possibly be fitted with bird wires that might, to some unspecified extent, “discourage” aquatic birds from alighting, and that its reservoirs have fences that “discourage” swimmers and animals (presumably only large ones, not rodents for example) from entering the

---

<sup>31/</sup> See 71 Fed.Reg. at 713 (public water systems “routinely find a great variety of items that have been thrown into open reservoirs, despite the use of high fences and set-back distances. Such items include baby carriages, beer bottles, bicycles, bullets, dead animals, dog waste bags, fireworks, garbage cans, a pay phone, shoes, and shovels.”).

reservoirs. Portland Br. at 10.<sup>32/</sup> Even if Portland had advanced these arguments during the rulemaking, they give scant reassurance to those charged with safeguarding our water supply and eliminating life-threatening cryptosporidiosis outbreaks, as Congress directed. The disappearance of aging, open reservoirs that began long before promulgation of the LT2 Rule occurred for good reason.

New York City (Br. at 11-18) claims EPA improperly pooled results of individual reservoirs, that the LeChevallier study is not relevant to unfiltered systems, and that oocysts found in the studied reservoirs were not viable. None of these arguments has merit. LeChevallier specifically examined increases in *Cryptosporidium* between inflow and outflow in certain reservoirs. While the data for each reservoir was insufficient to make a statistically sound finding for each reservoir, the study's overall finding confirmed what EPA had found in previous studies and, indeed, what common sense suggests – microbial contamination, including *Cryptosporidium*, increases in reservoirs when they are open to the air. EPA simply used the LeChevallier study to confirm a general finding based on

---

<sup>32/</sup> Dr. LeChevallier (see study referenced at n.28, supra, at 86) noted that “many small mammals” (such as mice, squirrels, and other rodents) that live near reservoirs may be infected with *Cryptosporidium* and “shed oocysts into the finished water.” He also noted that birds that scavenge at landfills or waste discharge sites may be sources of *Cryptosporidium* contamination in reservoirs. Id. at 85-86.



what other studies had already documented. It is the aggregated results, not the specific statistics for individual reservoirs, that matter.

New York's contention (Br. at 15) that LeChevallier focused on reservoirs for filtered systems is irrelevant. The point of that study was to determine the extent of contaminant change between water inflows and outflows, so the source of the water is irrelevant. Similarly, while some percentage of *Cryptosporidium* oocysts may not prove infectious, a fact that EPA accounts for in its risk assessment, RTC at 20-23 (JA XX), some will. EPA used LeChevallier's study simply to confirm that levels of oocysts increase in open reservoirs, not to measure the precise extent of that increase or to document the specific risk from that increase.<sup>33/</sup>

Further, there is no basis to conclude that Portland's reservoirs (or New York's Hillview Reservoir) are different in relevant respects from those involved in the studies EPA relied on. Both Cities' reservoirs are located in metropolitan areas, Portland's in popular urban parks and New York's in a densely populated urban area. With the possible exception of runoff, their reservoirs are vulnerable to the same contamination sources – particulate deposition, algal growth, bird

---

<sup>33/</sup> New York City's rulemaking comments acknowledged that there is no test to determine an oocyst's infectivity. NYC Comment at 16 (JA XX).

droppings, insects, fish and small animals, and intentional human contamination – as other open reservoirs, as documented in the studies EPA relied on. EPA’s response to comments acknowledged that some open reservoirs have fences and bird deterrent wires, but noted their proximity and vulnerability to other sources of contamination that cannot be prevented as long as the reservoir remains uncovered, especially in metropolitan areas.<sup>34/</sup> RTC 10-1 (JA XX). See also LeChevallier at 3 (noting increases in microbial contamination in open reservoirs even where water’s residence time was just one day) (JA XX)<sup>35/</sup>; AWWA at 1-4 (documenting substantial bacterial increases in open reservoirs in California that are engineered structures and have runoff prevention, bird deterrent wires, and fencing) (JA XX).

---

<sup>34/</sup> It is untrue that there is not “a single datum showing *Cryptosporidium* to be present in any uncovered finished water reservoir designed and managed as are Portland’s.” Portland Br. at 20. The studies that EPA relied on document increases in *Cryptosporidium* and other contaminants in water from reservoirs that are similar to Portland’s in all relevant respects (*i.e.*, they are open to the air and located in urban areas). Portland’s own submission to EPA documents *Cryptosporidium* in its water supply, cryptosporidiosis in the Portland community, and concerns about risks of cryptosporidiosis by their largest customer. White Paper (JA XX).

<sup>35/</sup> While New York City now suggests (Br. at 7) that a short residence time for reservoir water decreases contamination risks, during the rulemaking (NYC Comment at 16) took the position that longer residence times might decrease such risks by allowing time for *Cryptosporidium* oocysts to degrade.

While not all commenters supported EPA's final rule, many did, and EPA's action represents a reasonable response to these commenters' concerns. Portland (Br. at 22-23) dissects and belittles the comments of members of the public who expressed grave concern that EPA might allow open reservoirs to continue without covers or adequate treatment. But EPA does not reject comments simply because they are brief or anonymous, or because there are relatively few of them on an issue. There were comments on all sides of the two principal open water reservoir issues (i.e., whether to allow the risk mitigation plan option and whether to require treatment for *Cryptosporidium* and *Giardia* as opposed to simply requiring disinfection) and EPA carefully considered and addressed the merits of each. See RTC Chapter 10, at 10-1 to 10-19 (JA XX-XX). That there were relatively few commenters on these issues simply reflects the increasing scarcity of open reservoirs.<sup>36/</sup>

**C. EPA Provided Adequate Notice And Opportunity For Comment.**

---

<sup>36/</sup> It is unclear what Portland (Br. at 22) is referring to when it alleges "EPA's almost casual dismissal of hundreds of pages of closely reasoned comments by highly qualified experts questioning the economic analysis underlying the Rule." EPA considered and responded to all comments on the Economic Analysis underlying the rule and changed the final rule in the process. EPA's RTC document for the Economic Analysis is itself over 70 pages long. Further, it is unclear how the allegation relates to open reservoirs, a topic on which there were few commenters.

Despite the fact that stakeholder recommendations acknowledged that EPA would consider changes to the proposed requirements in response to comments and the fact that the proposal expressly requested comment both on the elimination of the risk mitigation option and the necessity of Cryptosporidium treatment, Portland contends (Br. at 27-30) it was denied an opportunity to comment on these issues. Portland alleges that: (1) the stakeholder recommendations on open reservoirs created “a presumption” that EPA considered the matter “settled” (Br. at 27); (2) EPA’s request for comment could have been more detailed (id. at 27-28); and (3) few commented on these issues (id. at 28-30). Portland claims prejudice from its alleged lack of notice (id. at 30). The record shows, however, that the proposed rule expressly requested comment on precisely the issues of current concern to Portland, and various commenters (though not Portland) specifically commented on these issues. Regardless, Portland was not prejudiced because the record reveals that EPA took into account the pertinent aspects of the information that Portland now says it would have submitted if it had participated.

This Court has made clear that “EPA undoubtedly has authority to promulgate a final rule that differs in some particulars from its proposed rule.” City of Waukesha, 320 F.3d at 245. As noted in Int’l Harvester Co. v. Ruckelshaus, 478 F.2d 615, 632 n.51 (D.C. Cir. 1973), “[a] contrary rule would

lead to the absurdity that . . . the agency can learn from the comments on its proposals only at the peril of starting a new procedural round of commentary.”

Under this “logical outgrowth” test, the inquiry is whether at the time EPA issued its proposed rule, commenters “should have anticipated,” City of Waukesha, 320 F.3d at 245, that EPA might reach the decision it ultimately did.

Here, the outcome of the public process was a rule that is a logical outgrowth of the proposal. Far from creating a “presumption” that the matter was “settled,” Portland Br. at 26-27, or a binding “context” or “aura of consensus,” *id.*, EPA’s proposal repeatedly expressed concern about uncovered reservoirs and specifically requested comment both on eliminating the risk mitigation option and on requiring *Cryptosporidium* treatment. Portland officials apparently had a change of heart on these issues in the three-year period between the time the LT2 Rule was proposed and the time it became final. The City’s contention that it declined to comment here because an aura of consensus lulled it to sleep lacks merit.

If proof of this is required, it can be found in the fact that others directly addressed the issues on which EPA sought comment, criticizing the risk mitigation

option and the standard disinfection treatment option.<sup>37/</sup> Given the relatively few utilities affected by these requirements, the number of commenters was what would be expected.

Portland cannot support its claim that it was prejudiced by its supposed failure to take seriously EPA's request for comment, and it is difficult to envision what Portland could have submitted that is materially different from what EPA considered. EPA considered reservoirs that had fences, bird deterrent wires and security measures, EPA RTC 10-1 (JA XX), and found that even if such measures were installed at open reservoirs, they would be insufficient to address all sources of contamination in a manner equally as protective as covering the reservoirs or treating the discharge waters for *Cryptosporidium*. Even assuming for argument's sake that EPA's requests for comment were somehow inadequate, Portland provides no evidence it was harmed because it has no information on open reservoirs to provide that was not already taken into account in formulating the final rule.<sup>38/</sup>

---

<sup>37/</sup> One commenter even quoted verbatim EPA's Request for Comment (68 Fed.Reg. at 47,719) on whether it would be appropriate to allow systems with uncovered finished water facilities to implement risk management plans. AWWA Comment at 92 (JA XX).

<sup>38/</sup> Portland asserts (Br. at 9-10) that it would have documented the "purity" of its  
(continued...)

### III. EPA'S REQUIREMENT THAT ALL UNFILTERED SYSTEMS TREAT FOR CRYPTOSPORIDIUM IS CONSISTENT WITH PORTLAND'S PREVIOUS RECOMMENDATION TO EPA AND IS REASONABLE <sup>39/</sup>

Portland's second substantive challenge to the LT2 Rule concerns the requirement that all unfiltered systems, whether or not they have open reservoirs, treat for Cryptosporidium. See 40 C.F.R. § 141.712, 71 Fed.Reg. at 776.<sup>40/</sup> EPA

---

<sup>38/</sup>(...continued)

source waters but even if that were true, it is unavailing because it ignores the manifold threats to the water after it reaches the storage reservoirs.

<sup>39/</sup> Oregon Wild's amicus brief (at 1) speculates that the LT2 Rule might have the indirect effect of causing Portland to stop preserving the Bull Run watershed. This contention was not raised during rulemaking so EPA never considered it. (Oregon Wild's brief claims participation in the rulemaking but EPA has no record of any submission to the docket by Oregon Wild during the comment period. Oregon Wild's counsel has provided EPA a copy of a letter relating to the LT2 Rule, but it is not addressed to EPA, was never submitted to EPA's docket, and is dated 1 ½ years after comment closed.) Oregon Wild's brief should be disregarded. See Military Toxics Project v. EPA, 146 F.3d 948, 956 (D.C. Cir. 1998) (declining to reach merits in challenge to EPA rulemaking where no one commented on issue during rulemaking and therefore "waived the argument and may not raise it for the first time upon appeal"). In any case, the claim that if Portland must comply with the rule, it might abandon the watershed is pure conjecture. Portland makes no such claim, and its incentive to preserve the watershed stems largely from the separate EPA requirement that cities desiring to avoid filtration must protect their watersheds. The filtration requirements are much more costly than LT2's and no basis exists for asserting that Portland is considering installing filtration due to LT2.

<sup>40/</sup> As discussed above, New York City lacks standing to challenge the rule. Where Portland relies on arguments advanced in New York City's brief (see, e.g.,  
(continued...))

based this requirement on data analyzed after the 1998 SDWA rules. These data caused EPA to reassess its assumption that the risk of Cryptosporidium contamination would be about the same with respect to a water system with filter treatment and a water system that has in place a source water management program that enables it to be exempted from filtering requirements (i.e., an “unfiltered system”). 68 Fed.Reg. at 47,648.

EPA’s previous assumption was that sources of Cryptosporidium would be effectively minimized through implementation of a watershed management plan for each unfiltered system, such that further treatment downstream was unnecessary. However, post-1998 data showed that the unfiltered water was only slightly less contaminated by Cryptosporidium than the average filtered system’s water prior to treatment. Since filtered systems were already required to provide 2-log Cryptosporidium treatment, unfiltered system water delivered to the public would have higher Cryptosporidium levels than the water provided by filtered

---

<sup>40/</sup>(...continued)

(Portland Br. at 42 n.18), Portland’s arguments should be disregarded. Further, Portland’s express reliance (avowedly “in the interest of avoiding duplication”) on arguments it expected to be made by New York City (which did not file a petition for review) is improper. For example, Portland devotes only two sentences (Br. at 42) to its argument that EPA’s cryptosporidiosis mortality estimates are flawed, and “refers” the Court to New York’s anticipated “discussion of the impact of this issue.” Id. n.18.



systems. As a result, the stakeholder group (including Portland, as designated leader on behalf of unfiltered systems) that reviewed these data agreed that unfiltered systems should provide basic *Cryptosporidium* treatment and recommended that to EPA. 68 Fed.Reg. at 47,650. See also 65 Fed.Reg. at 83,022. Thus, EPA proposed to require that all unfiltered systems provide at least 2-log *Cryptosporidium* treatment prior to water distribution to consumers, monitor source waters for *Cryptosporidium*, and provide additional *Cryptosporidium* treatment if levels in the incoming water supply are unusually high. 68 Fed.Reg. at 47,679. These requirements essentially put unfiltered systems on a par with filtered systems for *Cryptosporidium* risks.

When EPA requested comment on this proposed treatment requirement, the principal concerns raised were that EPA should not require *Cryptosporidium* treatment because unfiltered systems have low levels of *Cryptosporidium* contamination and there is insufficient evidence to link unfiltered systems to actual cryptosporidiosis cases. 71 Fed.Reg. at 683. EPA responded to the first point by noting that no watershed is free of *Cryptosporidium* due to its ubiquity in the environment. Id. Regarding cryptosporidiosis in the population, EPA stated that it does not consider the number of reported cryptosporidiosis cases to be a reliable indicator that treatment is unnecessary because data show that most cases

go undetected and unreported, and even if reported, often cannot be traced to a particular source (e.g., contaminated drinking water or a swimming pool). Id.; RTC 20-33 (JA XX). See also 71 Fed.Reg. at 660-61. The final rule was unchanged from the proposal on this issue.

Now, Portland has reversed course and challenges the treatment requirement for unfiltered systems that it previously recommended to EPA. Portland criticizes EPA's infectivity analysis (which analyzes the risk of infection from *Cryptosporidium*) (Br. at 33-40), asserts that EPA's analysis is inconsistent with empirical evidence showing fewer cases of cryptosporidiosis than EPA estimates (id. at 40-42<sup>41/</sup>), and alleges that EPA did not respond to comments on these issues (id. at 42-46). New York City (Br. at 20-22) argues that EPA improperly assessed risk based on Milwaukee's cryptosporidiosis outbreak. These arguments are irrelevant and unpersuasive.

**A. The Cities' Criticisms Of The LT2 Rule's Infectivity Analysis Are Irrelevant Because The Rule's Treatment Requirements Are "Feasible" And Therefore Required By Statute.**

As discussed, Portland's and New York City's critiques of EPA's cost/benefit analysis are irrelevant. Both Cities quibble at length over exactly how much *Cryptosporidium* is in their water and how many people can be proven to

---

<sup>41/</sup> See also NYC Br. at 22-26.

have actually gotten sick from that contaminant in tap water, but such calculations are irrelevant. Whether the rule's benefits are higher or lower than EPA calculated, the SDWA requires EPA to ensure that drinking water be treated to the extent feasible. That the treatment techniques required under the rule are "feasible" (available and affordable for large systems) is uncontested. Contrary to Portland's assertion (Br. at 33), EPA does not need to "justify the burdens the Rule would impose." The requirements of a Cryptosporidium rule may not be adjusted based on a weighing of costs and benefits. Thus, even if Portland and New York City were correct (which they are not) that EPA's infectivity estimates are a bit too high, that would not affect the LT2 Rule's validity.

**B. Even If Portland's Arguments Were Legally Relevant, EPA's Analysis Of The Risks Posed By Cryptosporidium Was Based On The Best Available Peer-Reviewed Science And Should Be Accorded "Extreme Deference."**

As noted by this Court in upholding previous EPA drinking water standards, and as Portland acknowledges (Br. at 18), courts accord EPA an "extreme degree of deference" in assessing scientific and economic challenges under the SDWA. City of Waukesha, 320 F.3d at 247. EPA's LT2 scientific analyses easily pass muster under this highly deferential standard.

EPA's proposal detailed the data upon which it based its benefits analysis.

EPA addressed how infectious *Cryptosporidium* is, discussed the modification made to the original infectivity analysis following review by the Science Advisory Board, and described remaining uncertainties in the analysis. 68 Fed.Reg. at 47,650-52. The purpose of the infectivity analysis was to determine the likelihood of a person getting sick from ingesting one *Cryptosporidium* oocyst (the “r” value). A major component of this analysis was devoted to explaining how EPA extrapolates from the study doses at which persons became ill, the lowest of which was ten oocysts, to the more common actual drinking water dose of one oocyst. This analysis was challenging due to uncertainties in how to perform the extrapolation. EPA addressed these uncertainties using two different models in its proposal, showing a mean probability of infection from ingesting a single oocyst ranging from seven to ten percent. 71 Fed.Reg. at 662. EPA received numerous comments on this analysis, identified new studies, and received peer review of the analysis by the Science Advisory Board. In the final rule, EPA recalculated *Cryptosporidium* infectivity using the new data and six different dose-response models – including the two models used at proposal – which resulted in a new estimate of the probability of infection from ingesting one *Cryptosporidium* oocyst: four to sixteen percent. 71 Fed.Reg. at 662. To address uncertainties in the results, EPA presented a range of benefits from the rule that incorporated both

the “low” and the “high” infectivity estimates. Id. See also id. at 731, 747 (discussing rule’s benefits and the uncertainties in the analysis).

EPA “ground-truthed” these results by comparing the model ranges with the data from the most significant outbreak for which EPA had data – the 1993 Milwaukee outbreak. RTC at 20-23 (JA XX). As EPA noted in the final rule, however, regardless of whether one uses the “low” or “high” estimates, the risk associated with a given concentration of *Cryptosporidium* was higher than EPA had estimated in 1998. Thus, the analysis supported the need for additional treatment. 71 Fed.Reg. at 662.<sup>42/</sup>

During the rulemaking, New York City described EPA’s LT2 risk assessment as “rigorous” (NYC Comment at 3) (JA XX). Now, the Cities attack the risk assessment, arguing that EPA used a flawed process to compute *Cryptosporidium* infection rates. Portland Br. at 33-34; NYC Br. at 20-22. Portland’s claim that “every step” in EPA’s risk assessment was flawed is contradicted by the record. Indeed, the Science Advisory Board, an independent panel of scientific experts who reviewed the risk assessment for the proposal, concluded that EPA’s analysis did “an excellent job of addressing the impact of

---

<sup>42/</sup> The cost/benefit analyses for the final rule were peer reviewed. RTC at 20-7 (JA XX).

drinking water quality on the incidence of non-reportable endemic disease and the health risk reduction that will result from the reduction of endemic disease as a result of the proposed regulation,” and “congratulated” EPA for its “ground-breaking work.” Science Advisory Board Peer Review at 2 (JA XX).

The few “flaws” that Portland identifies were raised in public comments and responded to by EPA. For example, Portland’s argument that EPA used older data collected using less accurate methods for unfiltered systems was explained in the preamble, where EPA noted that it used the best data it had, which for unfiltered systems was data collected under the first “Information Collection Rule” or “ICR.” 71 Fed.Reg. at 662. Indeed, Portland admits (Br. at 11) that the ICR contains the relevant information on unfiltered systems. In response to the criticism that Portland notes of EPA’s estimate of public water consumption, in the final LT2 Rule EPA subtracted bottled water consumption, but did not reduce the assumed daily intake due to any “markedly higher use of bottled water by sensitive subpopulations” (Portland Br. at 34) because EPA lacked information documenting what, if any, fraction of sensitive subpopulations practice such averting behaviors (e.g., substitute bottled for tap water) compared to the general population. RTC at 20-30 (JA XX-XX).

Portland argues (Br. at 34-40), inaccurately, that EPA’s final rule ignores

the peer-reviewed work of EPA statistician Michael Messner. First, while Dr. Messner's original work was considered by EPA in developing the proposed rule's estimates, based on public comment, peer review comments from the Science Advisory Board and new peer-reviewed data published in 2002 showing greater infectivity than predicted in Dr. Messner's original work, Dr. Messner and his colleagues revised these estimates.<sup>43/</sup> The revision incorporated the new data, responded to the Board's comments to account for greater uncertainty in the data and modeling for the final rule, and took into account public comments on the original analysis. 68 Fed.Reg. at 47,651; 71 Fed.Reg. at 662, RTC at 20-22 to 20-24 (JA XX-XX). EPA's final rule properly relied not on Dr. Messner's original analysis but on an updated and expanded version. The analysis used for the final rule was peer reviewed and explained in the rule's preamble, in the RTC document, and in the revised Economic Analysis. 68 Fed.Reg. at 47,651; RTC 20-7 (JA XX); EA Chapter 5 (JA XX-XX) and Appendix N (JA XX-XX).<sup>44/</sup>

---

<sup>43/</sup> Portland (Br. at 37) criticizes as unreliable certain new data that EPA used, claiming the data "remains unpublished." These data were published in a peer-reviewed journal in November 2006 – Chappell, *et. al.*, Cryptosporidium Hominus: Experimental Challenge of Healthy Adults, 75(5) Am.J.Trop.Med.Hyg. 851-57.

<sup>44/</sup> Portland (Br. at 36) denigrates the Science Advisory Board peer review, asserting that it did not include a "specialist in quantitative microbiological risk (continued...)

Portland's lawyers attempt (Br. at 39) to graphically depict certain EPA data but their effort is misguided. Their graph (which is not in the record) appears incorrectly to assume that infectivity can simply be calculated using the mean of the 8,000 estimates of infectivity that were input into EPA's dose-response model. Portland's graph fails to duplicate EPA's statistical modeling, which requires relatively complex calculations involving adjustments for uncertainties and variabilities in *Cryptosporidium* strains. In short, EPA used a distribution to calculate infectivity, not a single "mean" value. See EA, Appendix N at 5 (JA XX).<sup>45/</sup> Below is a correct graph showing EPA's modeled infectivity estimates in relation to infectivity studies in the record (EA Appendix N, N-2 to N-4). It shows that the estimates closely correlate with the data:

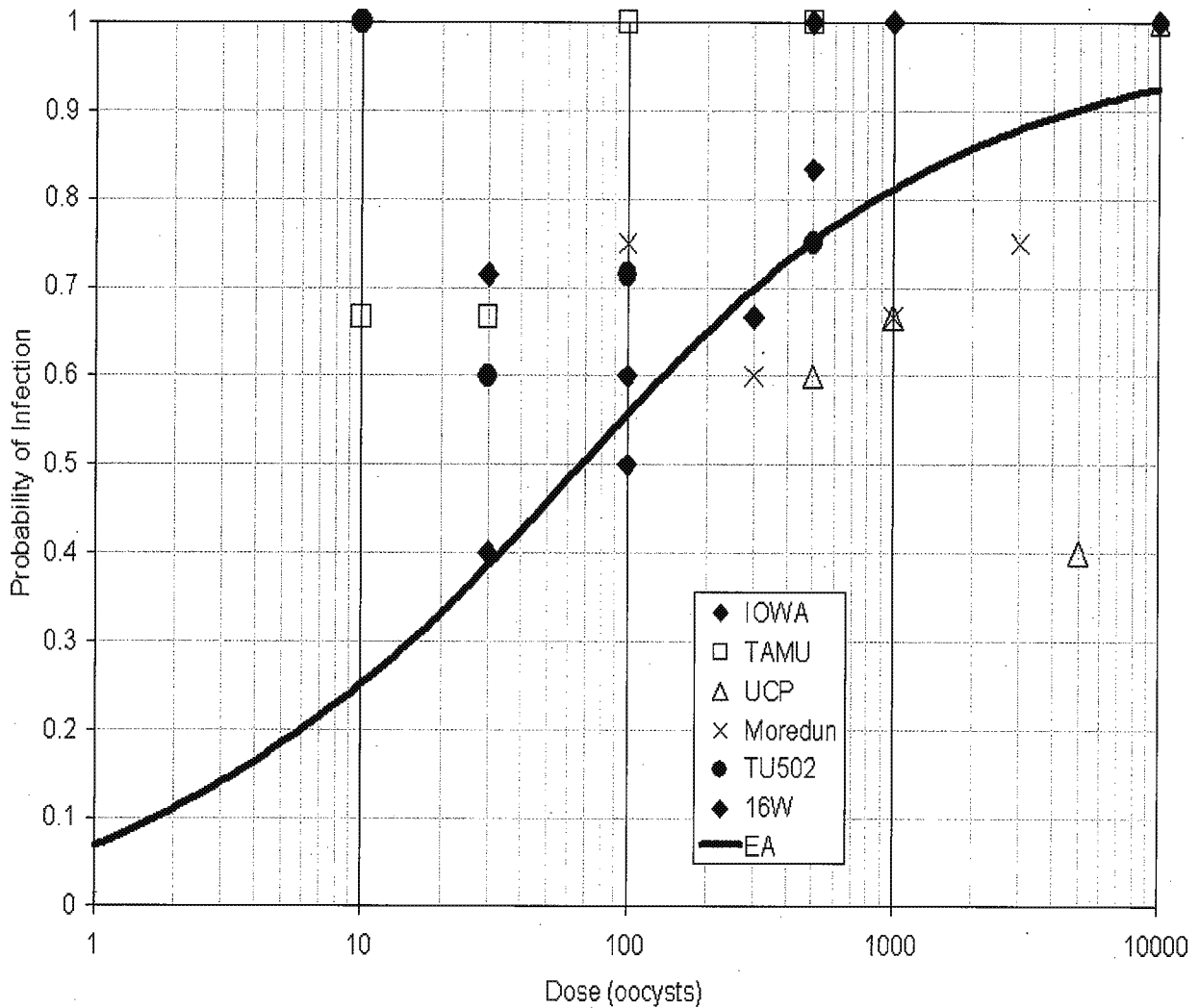
---

<sup>44/</sup>(...continued)

analysis, a relatively new field." However, the peer review at issue related specifically to EPA's modeling of dose response, for which the Board's expert statisticians and public health microbiologists are fully qualified, as reflected in their substantive and detailed recommendations. Science Advisory Board Peer Review at 7-21(JA XX-XX).

<sup>45/</sup> EPA did not use an *r* (infectivity) value of 9.07 percent, contrary to Portland's assertion (Br. at 39). Rather, EPA's analysis generated 40,000 values of *r*; 8,000 of these values were randomly selected for the benefits model. The "mean" of these values is 9.07 percent, but that is not a number EPA used.





The Cities also claim that EPA ignored empirical evidence of cryptosporidiosis that would show that EPA overestimated the rule's benefits. Portland Br. at 40-42; NYC Br. at 22-25. EPA responded to that contention during rulemaking, noting that studies have documented that the number of reported cases substantially understates the actual incidence of waterborne disease

cases. 71 Fed.Reg. at 660-61. Many who become ill do not seek medical attention and if they do, the disease-causing agent is not tested for or reported. Id. Even when cryptosporidiosis is identified, because analytical methods for detecting the contaminant are unreliable at the levels at which one can become ill, the source may be undeterminable. Id. at 661. Data from Milwaukee's outbreak demonstrate that actual cases exceed reported and confirmed cases by several orders of magnitude. Id. <sup>46/</sup>

EPA considered information from several cities (notably New York and Philadelphia) that was submitted in connection with assertions that the information showed lower levels of cryptosporidiosis than would be expected under the EPA model's estimates. However, as EPA explained, the disease surveillance data does not provide a sufficient basis to estimate the occurrence of cryptosporidiosis

---

<sup>46/</sup> Portland (Br. at 11) contests EPA's analysis by stating, incorrectly, that "EPA concedes that the statistical likelihood of anyone ingesting more than one oocyst in drinking water is negligible," but Portland misunderstands the Economic Analysis. The dose response model uses a probability of illness given infection ("morbidity rate") that is independent of the dose (number of oocysts) consumed because studies show no consistent difference in illness with increasing exposure after one has already been infected and because EPA's analysis is relevant to determining endemic (persistent low levels), not epidemic, levels of cryptosporidiosis. RTC at 20-23 and EA 5-19 (JA XX and XX). EPA's model assumes that persons are exposed at a typical low level, i.e., one oocyst, and that virtually no one ingests more than one oocyst, id., but this has nothing to do with the risk of anyone actually ingesting *Cryptosporidium*.

because such cases are significantly underreported. RTC at 20-33 (JA XX).<sup>47/</sup>

New York City (Br. at 20-22) argues that EPA improperly based its estimate of illness on the massive cryptosporidiosis outbreak in Milwaukee. However, EPA did not use that outbreak “to predict potential cryptosporidiosis cases in unfiltered systems.” NYC Br. at 20. EPA used the Milwaukee data for the limited purposes of determining mortality (the number of infected persons who die), and the severity of illness (the duration of illness and the medical costs incurred). RTC at 20-23 (6) (JA XX); EA at 5-52 JA XX).<sup>48/</sup> The Milwaukee data are the best source of this information and, when used for those purposes, are independent of the level of contamination or the type of system. Contrary to New York’s suggestion, EPA did not use the Milwaukee data to determine risk of infection or illness given infection (the morbidity rate). EPA used the dose-response model to determine the former and a series of studies to determine the latter. EA at 5-19

---

<sup>47/</sup> It is entirely possible that New York City and Philadelphia would be “unaware of significantly more than 99 percent of the cryptosporidiosis contracted by their residents” (Portland Br. at 41-42) because Milwaukee’s outbreak demonstrated that only a small fraction (perhaps 1 in 1000) of total cases are diagnosed and reported. RTC at 20-33 (JA XX).

<sup>48/</sup> Additionally, EPA used the Milwaukee data to ground-truth the results of the dose response model (which estimates the risk of infection if only one oocyst is ingested) and to confirm the magnitude of the illness’s underreporting. RTC at 20-23, 20-33 JA XX- XX).

(JA XX).<sup>49/</sup> New York City also confuses the infection rate, which increases with dose, with the morbidity rate, which the studies suggest does not increase with dose. See RTC at 20-23(6) (JA XX). Since the overall risk is a product of both infection rates and morbidity, EPA's estimates were based on an increasing risk of illness with increasing dose. Id.

The Cities' arguments about the soundness of EPA's risk assessment are not only irrelevant, they are unpersuasive.

**C. EPA Adequately Responded To Comments Concerning The Risk Assessment.**

Portland's final, and equally unsupported, challenge to EPA's risk assessment is that EPA did not adequately respond to comments concerning the analysis or the empirical evidence. The record shows that EPA's RTC document includes all comments criticizing EPA's infectivity analysis and a response to each. RTC 20-1 to 20-7 and 20-22 to 20-50 (JA XX, XX, XX). The comments Portland focuses on – from AWWA and Philadelphia – raised concerns about the

---

<sup>49/</sup> Portland incorrectly asserts (Br. at 39) that data do not exist “showing that anyone has become ill by ingesting fewer than 10 oocysts.” While the lowest dose in the studies was 10 oocysts, the average ingestion estimated for the Milwaukee outbreak was only one oocyst. EPA used infectivity values from the Milwaukee outbreak to ground-truth its modeling results, and these data suggest that *Cryptosporidium* is more, not less, infectious than the values that EPA calculated. EA at N-16 to 18 (JA XX-XX).

extrapolation models that EPA used in the proposal. RTC at 20-24 to 20-29 (JA XX-XX). EPA responded to those comments, and to those from other commenters and peer reviewers, by expanding the models used and providing additional explanation of the results and uncertainties. RTC at 20-6, 20-22 to 20-24 (JA XX, XX-XX). EPA also ground-truthed the result by comparing it to infectivity data from Milwaukee's outbreak. RTC at 20-23 (JA XX). EPA adequately responded to commenters' concerns.

EPA also responded to data from cities that presented information from their disease surveillance programs in an attempt to demonstrate that EPA's infectivity projections exceeded documented cases. EPA responded to these data in the rule's preamble and in EPA's RTC document. RTC at 20-33 to 20-44 (JA XX-XX); 71 Fed.Reg. at 660-61, 683. To verify its estimates, EPA also considered the Milwaukee data, which confirmed significant cryptosporidiosis underreporting. RTC at 20-33 (JA XX-XX).<sup>50</sup> Portland's contention that EPA inadequately

---

<sup>50</sup> Portland (Br. at 45) belittles the powerful evidence of underreporting from Milwaukee by arguing that most people are not exposed to *Cryptosporidium* and that *Cryptosporidium* levels were higher in Milwaukee than would be expected in an average system's water. These matters are irrelevant. The point of the Milwaukee data analysis was to determine how many cases of cryptosporidiosis were reported given the number of documented cases of illness, not to indicate that other water systems have levels of *Cryptosporidium* as high as that which caused Milwaukee's outbreak.

responded to comments on the risk assessment lacks merit.

**D. Under The LT2 Rule, Variances From The Unfiltered System Treatment Requirements Are Possible.**

Although EPA's preamble to the LT2 Rule mentions the possibility of a public water system's obtaining a variance from the rule's requirements, Portland's brief is silent on that score. Section 1415(a)(1)(B), 42 U.S.C. § 300g-4(a)(1)(B), provides that a primacy state (including Oregon) can grant a variance from a treatment technique requirement if a water system demonstrates that the technique is not necessary to protect public health because of the nature of the system's source water. EPA noted in the rule's preamble that this variance could be applied to the requirement that an unfiltered system treat for *Cryptosporidium* if the system could show it was already achieving public health protection equivalent to filtered public water systems due to its raw water source. 71 Fed.Reg. at 728-29. EPA observed that such a demonstration would be difficult but not impossible. *Id.* at 729. The availability of a variance for unfiltered systems that can demonstrate extraordinarily low *Cryptosporidium* levels further demonstrates the reasonableness of the LT2 Rule.<sup>51/</sup>

---

<sup>51/</sup> Oregon Wild (Br. at 12-14) attacks EPA's preamble discussion of variances by alleging, inaccurately, that EPA "effectively rules out" variances. This issue is not addressed in Petitioner's (or Intervenor's) brief and thus cannot be raised in an  
(continued...)

## CONCLUSION

The Petition should be denied.

Respectfully submitted,

MATTHEW J. McKEOWN  
Acting Assistant Attorney General  
Environment and Natural Resources Division

---

MARTIN F. McDERMOTT  
United States Department of Justice  
Environment and Natural Resources Division  
Environmental Defense Section

CAROLINE H. WEHLING  
Office of General Counsel  
U.S. Environmental Protection Agency

**Counsel for Respondent EPA**

February 2, 2007

---

<sup>51/</sup>(...continued)

amicus brief. Further, while EPA did state that it had not identified a feasible approach for demonstrating the low levels of *Cryptosporidium* necessary to meet the requirements for a variance, EPA did not rule out variances but specifically acknowledged that they may be appropriate based on “site-specific circumstances” or “innovative approaches.” 71 Fed.Reg. at 729.

Message

---

**From:** Rotert, Kenneth [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=AC56F5227DDB45B8B6F8925EAD0C076B-ROTERT, KENNETH]  
**Sent:** 1/30/2013 3:47:59 PM  
**To:** Suero, Alysa [Suero.Alysa@epa.gov]; Greene, Ashley [Greene.Ashley@epa.gov]; Macler, Bruce [Macler.Bruce@epa.gov]; Cordero, Cesar [Cordero.Cesar@epa.gov]; Noss, Charles [Noss.Charles@epa.gov]; Brune, Doug [Brune.Doug@epa.gov]; Villegas, Eric [Villegas.Eric@epa.gov]; Gray, Fredianne [Gray.Fredianne@epa.gov]; Galada, Heather [Galada.Heather@epa.gov]; Gilbreath, Jan [Gilbreath.Jan@epa.gov]; Gambatese, Jason [Gambatese.Jason@epa.gov]; Mistry, Jatin [Mistry.Jatin@epa.gov]; Mohanty, Jini [Mohanty.Jini@epa.gov]; Reilly, Kevin [reilly.kevin@epa.gov]; Wang, Lili [Wang.Lili@epa.gov]; McCasland, Mark [McCasland.Mark@epa.gov]; Katz, Melissa [Katz.Melissa@epa.gov]; Lowy, Michael [Lowy.Michael@epa.gov]; Messner, Michael [Messner.Michael@epa.gov]; Ashbolt, Nicholas [Ashbolt.Nick@epa.gov]; Shao, nicole [Shao.Nicole@epa.gov]; Berger, Philip [Berger.Philip@epa.gov]; Clement, Robert [Clement.Robert@epa.gov]; Cooperstein, Sharon [Cooperstein.Sharon@epa.gov]; Marshall, Wendy [marshall.wendy@epa.gov]; Finn, Michael [Finn.Michael@epa.gov]; Conley, Sean [Conley.Sean@epa.gov]; Regli, Stig [Regli.Stig@epa.gov]  
**Subject:** New York City Uncovered Reservoir Site Visit Notes  
**Attachments:** NYC Site Visit Notes.docx

Hi all,

We have notes from the site visits that a few of the OGWDW staff and others attended last fall. The notes from the New York City visit are attached. These are for your information only. Please do not distribute these. We believe that the visits and the notes from the visits will help to inform the LT2 review. Please let me know if you have any questions or comments.

Thanks

Ken



NYC Site Visit  
Notes.docx



Message

---

**From:** Finn, Michael [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=8D56E470F1EB406D94751DB70EF49687-MFINN]  
**Sent:** 7/19/2013 6:03:23 PM  
**To:** Shaff, David [David.Shaff@portlandoregon.gov]  
**Subject:** RE: UCFWR's remaining in the US  
**Attachments:** ASDWA Uncovered Reservoirs List.xlsx

David

A list of the information we have to date follows. These are UCFW reservoirs still in service. All utilities listed are under administrative orders or other state actions. I have also attached a spreadsheet we received from the Association of State Drinking Water Administrators with compliance actions and dates. The spreadsheet is at least several years old but I do not have anything else with specific compliance action or status that I can send.

Ticonderoga, NY (1)  
Rochester, NY (2)  
Rome, NY (2)  
Syracuse, NY (1)  
Skaneateles, NY (2)  
Syracuse, NY Metro (1)  
New York City (1)  
Passaic Valley, NJ (3)  
Newark, NJ (1)  
Trenton, NJ (1)  
Baltimore, MD (5)  
Los Angeles, CA (5)  
Rancho Estates, CA (1)  
Pauma Valley, CA (2)  
Astoria Youngs River (1)  
Portland, OR (3)

Mike Finn

Michael J Finn, P.E.  
Office of Ground Water and Drinking Water  
1200 Pennsylvania Ave NW  
Room 2368P  
Washington DC 20460  
202-564-5261  
email:finn.michael@epa.gov

---

**From:** Shaff, David [mailto:David.Shaff@portlandoregon.gov]  
**Sent:** Wednesday, July 17, 2013 1:14 PM  
**To:** Finn, Michael  
**Subject:** UCFWR's remaining in the US

Mike

I just came across a 2012 LT2 Overview presentation that you prepared and was wondering if I could get some additional information from you.

As you may know, four members of the Portland City Council recently announced that, "Faced with no other legal options and with deadlines looming, the city will move forward to meet the compliance timeline" related to the Open Reservoir mandates of LT2.

That triggered an "Occupy" movement at the site of three of our open reservoirs which recently ended.

One of the follow-up actions I would like to take is to update the City Council on the status of LT2 UCFWR compliance in the rest of the country. In 2009-10 we surveyed large water systems in the country to find out whether they had UCFWRs and what their compliance strategies and schedules are. We are updating our survey but would like to compare our information to the information you have indicating that there are/were 38 UCFWRs as of April of 2012 when you presented your Overview.

My goal is to provide our elected officials with accurate information regarding what other large PWSs have done and the compliance schedules they are under in order for them to understand where Portland fits in. They have repeatedly heard from the "Occupy" community that New York and Rochester have received waivers. They understand that is not the case and that NY and Rochester are both working toward compliance under the rule, but would, I am sure, appreciate knowing where we stand among others, not just NY and Rochester.

Can you provide me with the background information you have regarding the 38 remaining UCFWRs and their compliance schedules?

Your assistance would be greatly appreciated.

David Shaff, Administrator  
Portland Water Bureau

Uncovered Reservoirs - List of  
reservoirs that remain uncovered

Water System	PWSID	State	Region	Number of Reservoirs	Reservoir Name	Capacity	Status	Monitoring Data	Risk Mitigation	Public Health Agency
Bangor- Bangor Water District	ME0090110	ME	1	1	Floods Pond (in Otis, ME)		This is not a finished water reservoir. This is a natural surface water body that is the source of water for Bangor Water District. Maine does not have any uncovered reservoirs.		In order to protect the source of water, the District originally acquired a strip of land 200 feet wide around the periphery of Floods Pond and Burnt Pond, and in recent years has purchased several thousand additional acres of land in the watershed area to control activities which could impact water quality.	Bangor Health and Community Services
Massachussts Water Resources Authority		MA	1	5	Boston, Chicopee, Lawrence		All MA reservoirs are covered.			
City of Newark	NJ0714001	NJ	2	1	Cedar Grove Reservoir	750 MG	Provided feasibility report to state —under a state administrative consent order.	<del>no information</del> Newark Water Dept has conducted some sampling and is available from Andrew Pappachen, Supt of Water	No long-term plan in place. City drained the reservoir Oct. 5, 2011 to repair corrosion damage and inspect conduits and temporarily has a switchover to Great Notch Reservoir. <a href="http://www.ci.newark.nj.us/press/press_releases/oct_5_2011_city_of_newark_announces_drainage_of.php">http://www.ci.newark.nj.us/press/press_releases/oct_5_2011_city_of_newark_announces_drainage_of.php</a> The city's 2009 ammended IUP indicates construction of a cover for the Cedar Grove Reservoir with a cost of 62,730,000 The draft feasibility study recommended abandoning the reservoir and replacement with storage tanks, however, in late 2011 the City requested that NJDEP and EPA consider allowing treatment instead of storage tanks. EPA and NJDEP meeting with City of Newark in Sept 21 to reew proposal.	Essex County Public Health Department, NJ
Passaic Valley Water Commision	NJ1605002	NJ	2	3	Levine Reservoir	19.2 MG	Provided feasibility report to state —under a state administrative consent order to develop a plan and implementation schedule. Feasibility study approved August 2012. Levine and New Street Reservoirs will be abandoned and replaced with tank storage. The proposal to abandon Great Notch Reservoir was Under State ACO Under construction. In order to make system more robust during constnuction of cover, improvements to interconnections with adjacent was system must be completed. ACO timeframes are under review and will have to be adjusted for these interconnection improvements.	<del>no information</del> Passaic Valley Water Commision has conducted substantial monitoring over time and is availalbe from Joe Bello, Executive Director	Constructing new storage facilities. The city's 2009 ammended intended Use Plan indicates decommission of the reservoir and construction of a new 5 MG water storage tank with cost of \$13,330,000 Decommission the reservoir and replace with storage tanks	Passaic County Department of Health
					New Street Reservoir	52.4 MG				
					Great Notch Reservoir	178.5 MG				
Trenton Water Works	NJ1111001	NJ	2	1	N/A	104 MG	Under State ACO Under construction. In order to make system more robust during constnuction of cover, improvements to interconnections with adjacent was system must be completed. ACO timeframes are under review and will have to be adjusted for these interconnection improvements.		Installing a floating cover	
Newton		NJ	2	1		5 MG	No longer active.			
New York City – Hillview	NY7003493	NY	2	1	Hillview	900 MG maximum capacity	Planning – under EPA order to begin site preparation in 2017. Construction to be completed in 2028.	New York City Department of Environmental Protection Division of Watershed Water Quality Operations Hillview Reservoir - Monthly Wildlife Management Report provides data on bird counts, bird mitigation, and bird deterrent strategies.	There is currently Bird Mitigation and Deterrence at the reservoir. The city is also planning to build a UV plant. <a href="http://newyork.cblocal.com/2011/08/21/schumer-no-concrete-cover-for-yonkers-reservoir/">http://newyork.cblocal.com/2011/08/21/schumer-no-concrete-cover-for-yonkers-reservoir/</a>	New York City Health Department
New York City – Jerome Park		NY	2	1	Jerome Park				No public access until the Croton Filtration Plant is completed in 2013.	
Town of Ticonderoga	NY1500293	NY	2	1	Chilton Reservoir	1 MG	Engineering report submitted. Construction expected to be completed by July 2015.	no information	Chilton Reservoir is planned to be replaced by storage tanks.] DW38F project #17163 <a href="http://www.townofticonderoga.com/cms/_uploads/file/Project%20description%20Sept_2011.pdf">http://www.townofticonderoga.com/cms/_uploads/file/Project%20description%20Sept_2011.pdf</a>	Essex County Public Health Department, NY
Rome City	NY3020405	NY	2	2	Reservoir 1	15 MG	Engineering report under review by state —under a state consent agreement to complete construction in 2016.	no information	Constructing storage tanks.	Oneida County Health Department
					Reservoir 2	50 MG			Constructing storage tanks.	
Rochester City	NY2704518	NY	2	3	Cobbs Hill Reservoir	144 MG	In January of 2009, the City submitted its plan for LT2 compliance to the New York State Health Department. That plan calls for work to proceed in three overlapping phases, and be complete by the end of 2014.	no information	UV treatment	Monroe County Health Department
					Highland Reservoir	26 MG			Installation of waterproof liner inside reservoir, UV treatment	
					Rush Reservoir	63 MG			Installation of waterproof liner inside reservoir, floating cover	
Village of Skaneateles	NY3304331	NY	2	2	N/A	0.2 MG	Engineering report under review by state —under state consent agreement to complete construction in 2013.	City of Syracuse water quality tests sporadically detect <i>Cryptosporidium</i> oocysts in the Skaneateles Lake tributaries, the water system intakes, and	Replacing both reservoirs with one storage tank	Onondaga County Health Department
City of Syracuse	NY3304334	NY	2	1	Woodland Reservoir	125 MG	Design underway – under state order to complete construction in 2014	no information	Replacing both reservoirs with one storage tank	Onondaga County Health Department
Metropolitan Water Board, Syracuse City	NY3305674	NY	2	1		30 MG	In planning phase	no information	Planning to build two storage tanks	
Plattsburgh City	NY0900217	NY	2	2	Mead Westbrook	5000000 gal			Water taken from the reservoirs is piped to the City's water filtration plant where it has chlorination, sedimentation, filtration, and fluoridation treatments and is stored in a new ground storage tank.	
Brookwood Center	NY1002006	NY	2	1		55800 gal	No information			
Bell's Pond Mobile Park	NY1006319	NY	2	1		2400 gal	No information			
Adams Crossing Mobile Home Park	NY1006328	NY	2	1		1000 gal	No information			
Gleason's Mobile Home Park	NY1012333	NY	2	1		750 gal	No information			
South Cross Road Water Co	NY1302802	NY	2	1		5000 gal	No information			
Gloversville City Water Works	NY1700018	NY	2	1		8250000 gal	No information			
Herkimer Village	NY2102306	NY	2	1		11500000 gal	New surface water treatment rule compliance facility being built.			
King Estates/Hansel Apartments	NY2122552	NY	2	1		40 gal	No information			
Newport Village	NY2102311	NY	2	1		250000 gal	New surface water treatment rule compliance facility being built.			
Oneida City	NY2602381	NY	2	1	Glenmore	29000000 gal				
Tully Village	NY3304335	NY	2	1		340000 gal	In Onondaga County, New groundwater source in 2010			
Clifton Springs Village	NY3401154	NY	2	1		2700000 gal	In 2009, new storage and upgrade distribution center.			
Country Side Park	NY3411680	NY	2	1		200 gal	No information			
Albion Village	NY3600596	NY	2	1		4130000 gal	No information			
Island Road Mobile Home Park	NY3700909	NY	2	1		500 gal				
Maple Grove Trailer Park	NY3700917	NY	2	1		500 gal				
Ponderosa Trailer Park, Inc.	NY3700924	NY	2	1		6000 gal				
Northbridge Acres	NY3700938	NY	2	1		3000 gal				
Orwell WD	NY3704360	NY	2	1		150000 gal				
Lacoma-Sandy Creek Joint WW	NY3704865	NY	2	1		300000 gal				
Sandridge Mobile Court	NY3715923	NY	2	1		30000 gal				
Malden Lane Mobile Home Court	NY3730002	NY	2	1		6000 gal				
Lochvue Apartments	NY4117296	NY	2	1		1500 gal				
Wadhams Hall Seminary College	NY4402474	NY	2	1		5000 gal				
Mater Dei College	NY4402475	NY	2	1		14000 gal				
Edwards Village	NY4404384	NY	2	1		75000 gal				
Conifer WD	NY4417731	NY	2	1		250 gal				
Hillcrest Commons Rear Section	NY4630007	NY	2	1		4500 gal				
Central Islip Psychiatric Ctr	NY5103013	NY	2	1		1710000 gal				
Big Indian WC	NY5503365	NY	2	1		1000 gal				
Pine Hill Crystal Spring WC	NY5503381	NY	2	1		60000 gal				
Pleasant Villa M.H.P.	NY5701552	NY	2	1		1435 gal				
County of Onondaga		NY	2	2	Western and Eastern Reservoirs, Woodland Reservoir		Replacing reservoir with concrete tank, UV for Woodland			
Johnstown WaterWorks		NY	2	1	Maylender		Replacement of reservoir, construction of new storage tank			
Mohawk Valley Water Authority		NY	2	2	Hinkley, Deerfield		All uncovered taken offline in summer of 2011.			
Puerto Rico	PR	2	20							
City of Baltimore	MD300002	MD	3	5	Guilford Reservoir	36 MG	Under EPA order to cover or treat one reservoir in 2016 and the two remaining reservoirs in 2018. Two are already under construction.	no information	Plan is to replace reservoir with two concrete storage tanks.	Baltimore County Health Department
					Montebello Reservoir	N/A			Reservoir will be replaced with a 32 MG underground concrete storage tank	
					Towson Reservoir	N/A			Reservoir will be replaced with two underground concrete storage tanks	
					Lake Ashburton and Druid Lake	N/A			Conceptual study is underway; UV disinfection is proposed, however, for both of these reservoirs, the City has recently said they may construct new covered reservoirs at in lieu of treatment.	
					Pikesville Reservoir	N/A	Construction is complete.		Replaced by two concrete storage tanks (one 5.1 million gallon tank and one 14.7 million gallon tank) in September 2007 at cost of \$23.1 million	
Sandy Run Assoc.	PA2400136	PA	3	1	001 Reservoir	.01 MG	Should be covered by 2001 (1998)			
Delaware Water Gap	PA2450022	PA	3	1	001 Reservoir	.22 MG	Should be covered by 2001 (1998)			
Milford Water Authority	PA2520046	PA	3	2	001 Reservoir #1	.212 MG	Should be covered by 2001 (1998)			
					002 Reservoir #2	.35 MG	Should be covered by 2001 (1998)			
Honesdale Cons Water Co	PA2640018	PA	3	1	001 Cajarw Reservoir	1 MG	Should be covered by 2001 (1998)			
Pittsburgh Water and Sewer Authority	PA5020038	PA	3	2	006 Highland #1 Reservoir	120 MG	Should be covered by 2001 (1998)			
					007 Highland #2 Reservoir	125 MG	Should be covered by 2001 (1998)			
Alverda Com Wa Assoc.	PA5320001	PA	3	1	001 Reservoir	.0404 MG	Should be covered by 2001 (1998)			
Oakland Beach Wa Co	PA6200017	PA	3	1	001 Reservoir	.35 MG	Should be covered by 2001 (1998)			
Jamestown Boro Wa Auth.	PA6430043	PA	3	1	001 Reservoir	.75 MG	Should be covered by 2001 (1998)			
Elizabeth Area Auth	PA7220003	PA	3	2	001 Reservoir 1	.330 MG	Should be covered by 2001 (1998)			
					002 Reservoir 2	.175 MG	Should be covered by 2001 (1998)			
Williamstown Boro Au	PA7220037	PA	3	1	001 Reservoir	.30 MG	Should be covered by 2001 (1998)			
Masonic Homes	PA7360025	PA	3	1	002 Reservoir	1.4 MG	Should be covered by 2001 (1998)			
Virginia		VA	3	2			Left to be covered (1998)			
West Virginia		WV	3	1			<del>in process of being covered (1998)</del> All reservoirs covered by 2001.			
Wyoming		WY	8	2			The reservoirs should be covered by 1998.			
City of Los Angeles	CA1910067	CA	9	10	Elysian	54.6 MG	<del>Rubber will top reservoir (2013)</del> Install floating cover by 2016.	<del>no information available</del> Daily, weekly, and monthly monitoring of several water quality parameters including total and free chlorine, crypto, giardias, chlorophyll, total coliform, e. coli, and bird counts.	Installing a floating cover by 2016. Covered with shade balls since 2008. Other risk mitigation measures include chlorination at reservoir outlet, perimeter fencing, and 24/7 security.	California Department of Public Health
					Encino	3169.6 MG	Offline in 2002. Microfiltration plant treats effluent since 2006.			Division of Drinking Water and Environmental Management (DDWEM) <a href="http://www.cdph.ca.gov">www.cdph.ca.gov</a> and Los Angeles County Health Department
					Upper Hollywood	63.9 MG	Offline in 2001. Replaced by storage in 2 60-mg tanks.		N/A	
					Lower Hollywood	1312.7 MG	Offline in 2001. Replaced by storage in 2 60-mg tanks.		N/A	
					Invanhoe	58.5 MG	Construction of new underground storage tanks. Offline by 2014.		Decommissioning reservoir and replacing with underground storage (66-in diam pipe) Covered with shade balls since 2008. Other risk mitigation measures include chlorination at reservoir outlet, perimeter fencing, and 24/7 security.	
					Los Angeles	3313.8 MG	Construction of UV plant to treat effluent. Offline by 2018?		Constructing earthen dam bisecting the reservoir and two floating covers. Will be installing shade balls in 2012-2013. Other risk mitigation measures include chlorination at reservoir outlet, perimeter fencing, and 24/7 security.	
					Santa Ynez	117	Offline in 2010. Covered with floating cover in 2021.		Received ARRA funding to install a floating cover.	
					Silverlake	795 MG	Construction of new underground storage tanks. <del>(2013)</del>		Decommissioning reservoir and replacing with underground storage. Offline except for emergency use. Other risk mitigation measures include chlorination at reservoir outlet, perimeter fencing, and 24/7 security.	

Vertical sides and is raised above ground.

						Lower Stone Canyon	3379.5 MG	Offline in 2004. Microfiltration plant treats effluent since 2008.			N/A	
						Upper Stone Canyon	137.6	Install floating cover by 2016.			Los Angeles Department of Water and Power will install a 700,000 sqft flexible membrane floating cover on Upper Stone Canyon Reservoir, filed with Office of Planning and Research 2/9/12. Other risk mitigation measures include chlorination at reservoir outlet, perimeter fencing, and 24/7 security.	
San Diego County	CA3700934	CA	9	10		Pauma Valley Mutual		Applying for funding--under state order to complete construction in 2012. 2014/2015 antipated date of completion	Both tanks are set up with alarm systems to alert the front gate dispatch on too low or too high water levels. Both tanks are inspected periodically by scuba divers.	Consolidating or constructing new above ground storage tanks. Pauma Valley Mutual Water Company Consolidation Project with Yuima MWD is listed as "Projects to Receive Funding in 2011" in the June 2011 report to the Legislature Proposition 84 Section 75022 from the California Dept. of Public Health Division of DW and Environmental Management. The project is for a feasibility study to design storage tanks and design water pipeline to connect to Yuima MWD (funding: \$282,000 and \$3,700.00 for construction costs). Completion date yet to be determined.	California Department of Public Health Division of Drinking Water and Environmental Management (DDWEM) www.cdph.ca.gov	
	CA3700936					Rancho Estates		Applying for funding--under state order to complete construction in 2012. 2014/2015 antipated date of completion	no information	Consolidating or replacing with above ground tanks.	California Department of Public Health Division of Drinking Water and Environmental Management (DDWEM) www.cdph.ca.gov	
						Squire	230 MG	Emergency use only (1998) Not aware of this reservoir or water system being in San Diego.				
						Fallbrook PUD-Red Mtn.	72 MG	UV installed, compliance achieved Dec 2010				
						San Marcos CWD-Upper Twin Oaks	7.2 MG	Water system does not exist under CDPH or LPA jurisdiction.				
						Valley Center MWD-Turner	652	Emergency use only (1998) Raw water lake no longer capable of supply the potable water system.				
						Rainbow MWD-Beck	203 MG	Under construction		Constructing above ground tank (Pala Mesa tank) and decommissioning reservoir	California Department of Public Health Division of Drinking Water and Environmental Management (DDWEM) www.cdph.ca.gov	
						North	7.9 MG	Covered May 2010				
						Northside	22.8 MG	Covered September 2010				
						Morro	149.9 MG	Taken out of service Feb 2011, returned to service with new cover August 2012.				
McCloud		CA	9	1				Used in emergency basis only. (1998)				
Sacramento		CA	9	16		El Dorado I.D. has 16						
City of Angels		CA	9	1		1 Clearwell						
Lindsay-Strathmore I.D.		CA	9	2		Sadder	1.6 MG					
						El Mirador	26 MG					
Santa Ana		CA	9	2		MWDSC, IRWD-San Joaquin	1000 MG	Taken out of service for potable use. Converted to store non-potable recycled water and completely separated from the potable distribution system.				
						City of Newport Beach-Big Canyon	195 MG	Floating cover installed in 2004.				
City of Seattle (Seattle Public Utilities)	WA5377050	WA	10	10		Volunteer Reservoir	20.5 MG	Under state bilateral consent agreement to permanently take out of service in 2012. Will replace or permanently abandon by 2020.	no information	According to the 2013 Seattle Public Utilities Water System Plan, Volunteer Reservoir will be test decommissioned. Volunteer Reservoir will be decommissioned as soon as the Maple Leaf storage facility is put on line (http://www.cityofseattle.net/util/groups/public/@spu/@water/documents/webcontent/spu01_003803.pdf).	Public Health - Seattle and King County and Washington State Department of Health	
						Roosevelt Reservoir	50 MG	Under state bilateral consent agreement to permanently take out of service in 2012. Will replace or permanently abandon by 2020.		According to the 2013 Seattle Public Utilities Water System Plan, Roosevelt Reservoir will be test decommissioned. City of Seattle fact sheet says that Roosevelt Reservoir will be decommissioned as soon as the Maple Leaf storage facility is put on line (http://www.cityofseattle.net/util/groups/public/@spu/@water/documents/webcontent/spu01_003803.pdf).		
						SFU Control Works Surge Tanks	0.62 MG	[Two 0.31 MG standpipes]-- SFU installed a roof on each standpipe by the end of 2010.		Installation of a roof.		
						Maple Leaf Reservoir	59 MG	Construction of replacement buried reservoir 2009 - 2012.		Reservoir taken off line in 2009.		
						West Seattle Reservoir	68 MG	Construction of replacement buried reservoir July, 2009.		Reservoir taken off line in July, 2008.		
						Myrtle Reservoir	7 MG	Construction of replacement buried reservoir July, 2008.		Reservoir taken off line in 2005.		
						Beacon North Reservoir	61 MG	Construction of replacement buried reservoir July, 2008.		Reservoir taken off line in 2005.		
						Lincoln Reservoir	21 MG	Construction of replacement hard covered reservoir 2003.		Reservoir taken off line and replaced in 2003.		
						Lake Forest Park Reservoir	60 MG	Covered with floating cover and returned to service in 2003.		Reservoir taken off line and covered with floating cover in 2003.		
						Bitter Lake Reservoir	21.5 MG	Covered with floating cover and returned to service in 2002.		Reservoir taken off line and covered with floating cover in 2002.		
Roslyn	WA74400	WA	10	1		Roslyn Reservoir	Unavailable	Reservoir covered in 1999.	no information	Reservoir taken off line and covered in 1999.	Kittitas County Public Health Department and Washington State Department of Health	
Walla Walla	WA92500	WA	10	1		Treatment Plant Reservoirs	Unavailable	Reservoirs replaced with two covered reservoirs in January, 1998.	no information	Reservoirs disconnected in January, 1998.	Walla Walla County Health Department and Washington State Department of Health	
Racoma Wtr. Division	WA86800	WA	10	2			205000000 gal					
Country Club of Seattle	WA15480	WA	10	1		Country Club Reservoir	3000000 gal	This system was inactivated in 2001 when consumers connected to another water system.	no information	Reservoir no longer used for drinking water supply.	Kitsap Public Health District and Washington State Department of Health	
City of Aberdeen	WA00050	WA	10	3-2		Fairview Hill Reservoir #2	15.5 MG	Reservoir covered in 2003.	no information	Reservoir taken off line and covered in 2003.	Groyn Harbor County Public Health and Social Services Department and Washington State Department of Health	
						Fairview Hill Reservoir #1	9.5 MG	Reservoir covered in 2002.		Reservoir taken off line and covered in 2002.		
City of Port Angeles	WA5368550	WA	10	3		Peabody Heights Reservoir	7 MG	Reservoir covered in 2003.	no information	Reservoir taken off line and covered in 2003.	Clallam County Health & Human Services and Washington State Department of Health	
						Black Diamond Reservoir	7 MG	Reservoir covered in 2002.		Reservoir taken off line and covered in 2002.		
						Jones Street Reservoir	2 MG	Reservoir covered in 2000.		Reservoir taken off line and covered in 2000.		
Alderwood Wtr. District	WA01300	WA	10	1		Alderwood Reservoir	28 MG	Reservoir covered in 2001.	no information	Reservoir taken off line and covered in 2001.	Snohomish Health District and Washington State Department of Health	
City of Monroe	WA55820	WA	10	1		Monroe Reservoir	1.15 MG	Reservoir covered in 2001.	no information	Reservoir taken off line and covered in 2001.	Snohomish Health District and Washington State Department of Health	
Tesoro Northwest Company Water System	WA5378050	WA	10	1		Tesoro Refinery Reservoir	6 MG	Reservoir is no longer used for drinking water, just process water. Public water system was inactivated when they connected to a nearby water system.	no information	Reservoir no longer used for drinking water supply.	Skagit County Health Department and Washington State Department of Health	
City of Tacoma Water Division	WA5386900	WA	10	3		McMillin Reservoirs	110 MG	Reservoirs replaced with two covered reservoirs in 2012.	no information	Reservoirs disconnected in March, 2012.	Tacoma - Pierce County Health Department and Washington State Department of Health	
						Portland Avenue Reservoir	50 MG	Construction of 20 MG replacement covered reservoir in 2002.		Reservoir demolished and replaced in 2002.		
Port Madison	WA5368750	WA	10	1		Port Madison Reservoir	0.25 MG	Construction of replacement reservoir in 2002.	no information	Reservoir removed from service and replaced in 2002.	Kitsap Public Health District and Washington State Department of Health	
City of Portland	OR4100657	OR	10	5		Reservoir 1 (Tabor Park)	12 MG	Under state approved schedule to stop using its five uncovered reservoirs by December 31, 2020.	Routine monitoring and follow-up monitoring for chlorine levels, fecal coliforms and total coliforms. There was an E.coli positive at Washington Park's open reservoir on November, 28, 2009 and more recently on July 19th, 2012. Source: Oregon Drinking Water Data from OHA. http://170.104.63.9/dcoliform.php?twonon00657 The Portland Water Bureau cleans the reservoirs every 6 months and has fencing and video surveillance to decrease deliberate contamination. Aman urinates in open reservoir. http://abcnews.go.com/US/wireStory?id=14015668,06/12/12	Constructing new storage facilities. On August 2nd, members of the Pacific Northwest Section of the American Water Works Association (PNWA-AWWA) toured the construction site of the new 50 million gallon underground reservoir at Powell Butte Nature Park in Southeast Portland. http://www.portlandoregon.gov/water/article/328963 http://www.portlandoregon.gov/water/article/407326 http://www.portlandoregon.gov/water/article/328963 On May 17, 2012 Oregon Health Authority denied the request from the Portland Water Bureau to suspend compliance schedule for meeting LT2 requirements and to end use of uncovered water reservoirs by 12/31/20. The deadline for compliance with the open reservoir portion of the rule is December 31, 2015 for the Mt. Tabor Reservoirs and December 31, 2020 for the Washington Park Reservoirs. http://www.portlandoregon.gov/water/53849 for more information please contact Terry Black at (503) 823-1168.	Oregon Health Authority and Oregon Drinking Water Program (DWP)	
						Reservoir 5 (Tabor Park)	49 MG					
						Reservoir 6 (Tabor Park)	37 MG					
						Reservoir 3 (Washington Park)	16.4 MG					
						Reservoir 4 (Washington Park)	17.6 MG					
Youngs River Lewis and Clark Water District	OR4100062	OR	10	1		Lynstad Reservoir	N/A	Under state order to complete construction in 2012, and disconnect open reservoir.	System collects 3 routine samples from different designated sample areas through the distribution system(see Water Quality Report). http://www.youngsriverwater.com/sites/www.youngsriverwater.com/files/downloads/2012%20Water%20Quality%20Report.pdf	Constructing new storage tank. Youngs River Lewis and Clark Water District 2012-2013 Approved YRLC Budget indicates demolition of existing Lynstad Reservoir and replacement with a new storage tank. Youngs River Lewis and Clark Water District Phase III ASPMO Reservoir contract documents indicate they are moving forward with the project. http://www.youngsriverwater.com/reports-and-downloads	Oregon Health Authority and Oregon Drinking Water Program (DWP) and Multnomah County Public Health Department	
Ceetage Grove		OR	10	2			2-MG	no uncovered reservoirs - remove from list				
							1-4-MG	no uncovered reservoirs - remove from list				
Shelton		OR	10	4			1-5-MG	no uncovered reservoirs - remove from list				
							9-4-MG	no uncovered reservoirs - remove from list				
							9-6-MG	no uncovered reservoirs - remove from list				
							6-6	no uncovered reservoirs - remove from list				
Astoria		OR	10	2			17 MG	Installed floating covers in 2010				
							13 MG	Installed floating covers in 2010				
Estimote Grove		OR	10	1			2-MG	no uncovered reservoirs - remove from list				
City of Warrenton	OR4100932	OR	10	1		N/A	N/A	Under state order to complete construction in 2012, and disconnect open reservoir	no information	Constructing covered storage.	Oregon Health Authority and Oregon Drinking Water Program (DWP)	

Message

---

**From:** Finn, Michael [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=8D56E470F1EB406D94751DB70EF49687-MFINN]  
**Sent:** 5/15/2013 6:30:57 PM  
**To:** Lopez-Carbo, Maria [Lopez-Carbo.Maria@epa.gov]  
**CC:** Moriarty, Edward [Moriarty.EdwardJ@epa.gov]  
**Subject:** RE: LT2 & NY  
**Attachments:** Uncovered FW Reservoir HillviewNYCbackground.doc

FYI  
As far as I know DOJ has not moved forward with enforcement. Also R2 staff indicated NYC will ask for a further extension with the expectation that there will be a rule change.  
Mike

---

**From:** Lopez-Carbo, Maria  
**Sent:** Wednesday, May 15, 2013 1:30 PM  
**To:** Finn, Michael  
**Cc:** Moriarty, Edward  
**Subject:** LT2 & NY

There is a handy one pager that describes the history we have with new York and the uncovered reservoir....do you guys still have that? Thanks.

Maria A. Lopez-Carbo  
Special Assistant - Detail  
Office of Ground Water & Drinking Water  
202-564-4618

Message

---

**From:** Rotert, Kenneth [Rotert.Kenneth@epa.gov]  
**Sent:** 6/9/2017 6:10:48 PM  
**To:** King, Carol [King.Carol@epa.gov]  
**CC:** Albert, Ryan [Albert.Ryan@epa.gov]; Rodgers-Jenkins, Crystal [Rodgers-Jenkins.Crystal@epa.gov]; Finn, Michael [Finn.Michael@epa.gov]  
**Subject:** Nearest Estimate on List of UCFWRs  
**Attachments:** ASDWA Uncovered Reservoirs List.xlsx

Carol,

Here is my nearest estimate based on the amount of time I have to pull this together. I estimated this from the ASDWA file, which was updated from the 1998 list. I don't have the date of the update, but they provided some dates of actions within the file (see attached).

Thanks

Ken

Definitely with UCFWRs as of 2006 (59 or 60):

Newark NJ – 1  
Passaic Valley NJ – 3  
Trenton NJ – 1  
New York City – 2 (Hillview and Jerome Park (which I almost certain was still being used in 2006))  
Ticonderoga NY – 1  
Rome NY – 2  
Rochester NY – 3  
Skaneateles NY – 2  
Syracuse NY – 1 or 2  
Mohawk Valley NY – 2  
Baltimore, MD – 6  
Los Angeles CA – 9  
San Diego Co. CA – 6  
Santa Ana CA – 2  
Seattle WA – 7  
Tacoma WA – 2  
Portland OR – 5  
Youngs River OR – 1  
Astoria OR – 2  
Warrenton OR – 1

Not Entirely Clear about status, but likely uncovered as of 2006 (8 or 9, depending on one of the Syracuse reservoirs above):

Tully Village NY – 1  
Clifton Springs Village NY – 1  
Onondaga NY – 2  
Johnstown WW NY – 1  
City of Angels CA – 1  
Lindsay-Strathmore CA – 2

Addressed with cover, treatment or removal of service, but uncertain of the date (5):

Massachusetts Water Resources Authority MA – 3  
Newton, NJ – 1  
Tesoro, CA – 1

There are also 32 from New York, 2 from Wyoming, 16 from California (Sacramento), 20 from Puerto Rico, and 2 from Virginia that have no dates, but these likely make up the remainder of the 81 (8 remain from the lists above). This does not count a system called "Racoma" in Washington, which I'm assuming is a duplicate of Tacoma because its PWSID is nearly the same (one is abbreviated). Pennsylvania lists 14, but these all say they 'should be covered' by 2001. I'm making the assumption that they were done by 2006.

Kenneth Rotert  
US EPA Office of Ground Water and Drinking Water  
1200 Pennsylvania Avenue, NW  
Mail Code 4607M  
Washington, DC 20460  
202-564-5280

Message

---

**From:** Roland, Kevin [Roland.Kevin@epa.gov]  
**Sent:** 10/24/2017 5:21:45 PM  
**To:** Viveiros, Edward [Viveiros.Edward@epa.gov]  
**CC:** Banks, Victoria [Banks.Victoria@epa.gov]; Finn, Michael [Finn.Michael@epa.gov]; Hogan, James [hogan.james@epa.gov]  
**Subject:** Revised all violations since 2010  
**Attachments:** ConsolidatedList\_2017\_10\_23.xlsx

Hi all,

The last file of all viols included stuff before 2010. The new sheet in this file includes just those since 2010. TCR and St2 viols were not impacted, and are just since 2010.

- Kevin Roland  
Program Analyst, Protection Branch  
Drinking Water Protection Division  
Office of Ground Water and Drinking Water  
U.S. Environmental Protection Agency  
202-564-4588 (office)